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C. F. Williams

PRESIDENTIAL ADDRESS.*

Administrative Psychiatry.

By C. F. WILLIAMS, M. D., Columbia, S. C.

A year ago when I became your President I attempted to express my appreciation of the honor conferred upon me, feeling then that no honor of greater distinction can come to any man than that accorded to him by his associates. Today I desire to reaffirm that statement and to supplement it with further expressions of appreciation, for during the year it has been my pleasure to review the transactions of the Association and to read the addresses of many of my predecessors. These have given me a much clearer understanding of the aims and purposes of the Association and a fuller appreciation of the character and achievements of those upon whom the responsibility rested. While this has quickened my perception it has at the same time made much heavier the feeling of responsibility.

I have selected administrative psychiatry as the subject for discussion in this address. No difficulty was experienced in selecting the subject; the difficulty lay in the approach and the presentation of such parts of so broad a subject as would seem most helpful. I say no difficulty was encountered in the selection of the subject—a word of explanation may be necessary. As many of you will recall, a petition was presented to the Council on the day before its closing session last year urging the creation of a section on administrative psychiatry. Council delayed action for the purpose of giving careful consideration as new problems generally arise with the creation of a new section.

Then it was that marked interest became manifest in the subject, as evidenced by letters from many members of the Association from every section of the country urging the creation of such a section.

* Delivered at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13–17, 1935.

For several years there seems to have been a growing sentiment, certainly among the administrators, that this phase of psychiatry is being neglected and that its neglect is a decided detriment to the whole subject; that the programs, while excellent, are not well balanced, due to the interest and enthusiasm on the part of the members in the newer theories, and that the attention is not given to administration that the subject deserves.

As one reviews the literature and the Association programs for the past two decades he is impressed with the truth of this contention; for there is indeed a paucity of material on the subject and every indication of a definite swing toward the clinical and scientific field.

One might readily ask those raising the question where the blame lies; and the answer would have to be an admission on our part of a lack of vision or at least a lack of interest and aggressiveness. There is, however, no need for controversy as to where the blame lies—it is sufficient to know that it exists and to show a willingness to remedy it. Happily the wide spread interest manifested, as shown by the desire expressed by so many members of the Association for the creation of a section on administrative psychiatry, is evidence of their recognition of the need of certain changes, and their desire to consider and put into operation certain plans which, it is felt, will enhance the cause of psychiatry in all its various activities.

It is from this point of view that the subject is approached.

Administrative psychiatry used in this sense is broadly conceived and almost all embracing in its scope, not being confined solely to questions of hospital construction, organization, and the administration of the care and treatment of patients in the hospital as conceived by the founders of this Association however worthy may have been the efforts of those pioneers. It must now take into consideration all questions pertaining to mental disorders in their widest relationships as problems of disease and their effects upon a rapidly changing social order.

No argument is needed to convince us that we are in the midst of changing times; changes in international relationships; changes in government, changes in our educational, industrial, agricultural and economic systems, and changes in a multiplicity of ways in

our social order; some of them vitally affecting almost every activity of human endeavor.

Many of these changes are unquestionably creating new problems of adjustment which will have to be dealt with from the psychiatric approach. It would, therefore, seem that those members of our Association who feel the need of a section on administrative psychiatry or some consideration of the subject are seeing wisely and that this is the opportune time to begin a reconstruction of our administrative structure in accordance with the requirements of the changing times. It is evident that a complete structure cannot be erected all at once, and that additions and changes will have to be made from time to time as changing conditions require, but there are certain fundamental and basic parts of the structure which we as administrators have not stressed as much as we should, and it is to these that I most particularly wish to call your attention.

Before doing this let me say that there can be no let up in the advance that has been made in hospital organization and administration for the care and treatment of patients in the hospital.

Standards must be maintained and greatly improved if possible. This can best be accomplished by administrative policies fashioned in accordance with modern trends in medicine as well as in psychiatry.

If the mental hospital is to remain the center of psychiatric knowledge and activity its administrative policies must develop a leadership that is broad and inspiring—a leadership founded not only on the accomplishments of the past, but one that fully appreciates the more urgent needs of the present, and the future, among which may be mentioned (1) the need of medical education in psychiatry, (2) the proper relationship of psychiatry to general medicine, (3) preventive psychiatry, and (4) research.

It is not the desire to disturb in any sense the intramural affairs of hospital treatment, but it is felt that the emphasis should be shifted in part at least to the activities mentioned as offering the larger opportunities for promoting psychiatry.

It is fully realized that hospital facilities will have to continue caring for a large portion of mental hospital patients, for many of them have reached their limit of recovery and will require permanent care. Unfortunately this number is increasing annually,

further hampering the already overcrowded facilities and causing increasing embarrassment to the heavily burdened tax payers. As a practical problem this cannot continue for an indefinite period of time.

In this connection it is pertinent to quote the Committee on Mental Health of the American Medical Association, which states that "A state jurisdiction cannot continue to build public institution after public institution for the prolonged care of persons with various types of mental illness without serious embarrassment to the tax payers, nor can it continue the non-constructive policy of temporarily shutting people away from the community without cognizance being taken of the necessity for specialized treatment and restoration to some form of community life, based on individual needs and fundamental causes, always having in mind the eventual needs of society."

It goes on to say, "Some substitute must be found for the tremendously expensive building program which mental health administrators are now following. The medical profession must find a way for mitigating this situation without serious detriment to the mentally ill patient. Without professional leadership there must be an arbitrary modification of present policies, solely because of the financial burden involved without regard to medicine. The medical profession can no longer consistently refrain from attempting a contribution to the solution of these problems."

It is felt that the profession is willing to make the contribution, but its value will and should largely depend upon the leadership of this Association which should formulate and develop a program practical in application and so constructed as to meet the demands of our social organization. Through the awakening of the public consciousness as the result of the advance in many phases of psychiatric activity there is a growing conviction that institutional provision alone is an inefficient, unwise and uneconomic method of meeting the problem of mental illness and mental health; that for too long we have been dealing with end products and have not given adequate attention to the supply at the source; that to protect ourselves from the ever increasing burden, the underlying causes of mental sickness must be sought and removed; that patients with mental illness must be recognized early and given

adequate treatment so they may be cured or aided in their adjustments and not become charges upon their community or state.

To accomplish this brings us to the specific consideration of the questions mentioned as deserving special consideration in the suggested scheme of administrative psychiatry.

The first of these—the need of medical education in psychiatry—is so well known to the members of this organization that it would seem almost commonplace to mention it. Yet, it cannot be denied that considerable blame lies at our own door for its existence—a blame that really stands as a challenge to the leadership of this organization and particularly the administrative forces in the field of psychiatry. Already the challenge has been accepted on the part of the Association and much has been accomplished through the efforts of the committee on psychiatry in medical education. Three conferences on psychiatric education have been held. The programs presented, the attendance, and the interest manifested clearly indicate an awakened interest in this most important subject.

Class A standards for the teaching of psychiatry in our medical schools have been formulated and approved by this Association.

This movement should be supported to the fullest extent. The Association and the cause of psychiatry owe a debt of gratitude to those men who are laboring so zealously in this particular field.

Administrators in psychiatry cannot ignore their responsibility in the matter. There are many ways in which they can assist.

In the first place they must take stock of themselves to see if they are keeping pace with the forces engaged in the endeavor. They must show a ready spirit of cooperation toward those engaged in this work, furnishing them with such information as may be requested from time to time. They can no longer remain as isolated parts of a great medical problem. The Association is again showing its forward position through its efforts to advance psychiatric standards of practice by means of creating a Board of Examiners.

Psychiatrists have been too much isolated in mental hospitals and concerned chiefly with the mental aspects of the patients, and consequently have kept themselves too much aloof from the other branches of medicine. By reason of this lack of contact psychiatry has lost the opportunity not only of developing itself but also of having the subject presented in such a way as to arouse the interest of those engaged in general practice.

Opportunities exist in all state hospitals, with the possible exception of those remotely located, for the organization of consulting staffs. These should be developed to the highest order for they form a point of contact of great mutual advantage. Mental hospitals should be more universally used as teaching centers for medical students and physicians. In recent years there has been a general awakening on the part of the medical profession as to the need of psychiatric training. General practitioners welcome assistance and instruction, but cannot afford the expense of distant and time consuming post graduate courses. It is felt that properly planned seminars may assist in meeting this need.

In no other class of illness does the family physician so completely lose contact with his patient as in psychiatry if the patient is ill enough to require hospitalization. A simple but helpful form of contact can be established by sending the physician a copy of the hospital's findings with an invitation to visit and keep in touch with his patient. It will be amazing to see the number of invitations which will be accepted. Every possible contact with the general profession should be encouraged.

While it may be expected that the proper method of teaching psychiatry in the medical schools will soon be an accomplished fact, and that this is the source to which we must look for the greatest help; it is nevertheless necessary that steps be taken now to build up our staffs and our institutions so that the interest of those instructed may be held and further developed and that the great number of the profession who have not been so fortunate may no longer be neglected.

There is also great need for us to revalue general medicine in its relationship to psychiatry. This need was brought to our attention in the admirable address of Dr. Rappleye, the guest speaker of the Association last year. The growing appreciation that none of the organs, systems or functions of the body is independent but that all of them are related, emphasizes in a particular way this great need.

Because of a number of reasons the development of psychiatry has been somewhat independent of, though paralleled with, that of clinical medicine. During the last half century the phenomenal development of the scientific method led to extreme specialization

along anatomical lines. The human body was arbitrarily divided into various organ systems, with each of which was developed a specific and minute body of knowledge. But these specialized fields often failed to consider their relationship to the human organism as a whole.

Developing a little later in the history of specialization, there began an interest in the functional disturbances which were found to occur independently of any anatomical lesion. As the study of these mysterious disorders brought us increased knowledge, there came a gradual realization of the interdependence of the various organs and systems of the body. This realization resulted in a healthy reaction. For, while we have no wish to return to the empiricism and speculative medicine of the eighteenth and early nineteenth centuries, we must not focus all our attention upon the physical, chemical and structural features of disease. We must not only admit the interdependence of the organ systems, and regard a human being as a whole biological unit, but we must also consider his relationship to his environment. We must be as deeply concerned with his social adaptation as we are about the ability of his cells to resist pathogenic bacteria.

The present breach between psychiatry and general medicine, happily becoming narrower every year, has been occasioned by the failure on the part of general medicine to take into consideration this necessity. In the psychiatric field there has been developing a pronounced reaction against the cold, biological attitude of clinical medicine, resulting in a distinct swing toward the hypothetical approach. As a result we observe today two distinct attitudes, the one emphasizing the laboratory method, the other relying more upon observation and utilizing the technique of the sociologist.

This tendency among psychiatrists to stress environmental factors has perhaps annoyed the clinicians as much as the latter's emphasis upon chemistry, physics and biology has irritated the psychiatrists. The breach has been further widened by the exertions of a host of well meaning but often poorly informed individuals whose purpose it is to popularize and promote the social aspects of mental hygiene. What we need, of course, is not this army of popular lecturers, cult " professors," Freudian biographers and novelists, but sound psychiatric training as a part of medical

education. The clinical physician must be given a better understanding of the importance of emotional and environmental factors in health and disease. At the same time, we, as psychiatrists, need to adopt more of the conservative, laboratory minded attitude of the trained clinician.

While the settling of these differences between the clinical physician and the psychiatrists may be slower than we might wish, it is perhaps more thorough for this reason. And viewed macroscopically this subject is but one aspect of the more general movement to coordinate every branch of medicine into a comprehensive and integrated whole.

To accomplish this in the shortest time possible it is obvious that the most direct approach is the establishment of a psychiatric service in all general hospitals.

The time would seem opportune to take up with the proper officials the question of the establishment of an adequate psychiatric service as one of the requirements of Grade A hospitals.

At first there might be some difficulty about securing adequately trained men to staff such a service, but with the inclusion of psychiatry as a major aspect of medicine in the curriculum of our medical schools such a difficulty will not exist very long.

It is felt that such a service would offer an excellent opportunity for the practical application of psychiatry, much to the advantage of the patient as well as the medical profession as a whole.

Staffs of state hospitals can be materially strengthened by the addition or development in their own ranks of internists, surgeons, urologists, occulists and oto-laryngologists, and other representatives of special branches of medicine.

There are no special administrative difficulties to be overcome in the development of such a staff.

The prime aim of all medicine is prevention. In the field of general medicine the achievements in this regard have been remarkable. It would appear that Pasteur's dictum that " It is within the power of man to destroy all germ diseases " is about to be fulfilled.

The steady increase in mental diseases and the ever mounting costs are focusing the attention of the public upon this question, and those who are paying the bills are beginning to ask when they may expect some relief. Just how far this question can be answered

is not at all definite, but it is one which should be considered seriously by the members of this Association, and particularly by the administrative officers.

When compared with the achievements in prevention in the field of general medicine for the past quarter of a century our position is not a very enviable one. While it is true that comparisons are usually odious, it is also true that they sometimes bring to light some very interesting and illuminating data. It is also true that statistics are sometimes misleading, and in this instance such is probably the case.

The great increase in mental disorders shown in the past three decades is no doubt in part due to a better understanding of mental diseases by the general profession and the public, better hospital facilities, and less fear and dread of the mental hospital—all of which contribute to commitment.

But, making a liberal allowance for the increased admissions for the reasons given, or for any other reasons, the net annual hospital increase in the number of mental patients is about 4½ per cent. The survey of the American Medical Association shows that the total patient days in all hospitals in the United States in the year 1933 was approximately 296 million. Of this number it was shown that there were 173 million patient days in mental hospitals against 123 million for all other illnesses of all kinds.

These figures are alarming and bring forcibly to our attention the need for definite, concerted action in any and all preventive means which are at our disposal or may be devised. Dr. Russell in his presidential address stated that "Perhaps the time has arrived when a committee on preventive psychiatry should be appointed for the purpose of bringing together all the available information leading to scientifically or empirically determined etiological factors and of devising measures for dealing with them more definitely and adequately."

The formation of such a committee would seem most desirable at this time and its appointment is earnestly recommended. In any program of prevention, education must play an important rôle.

Much helpful material could be assembled from the various mental hygiene clinics and agencies through the country, particularly in the field of child guidance, which would be of great educational value.

The public is beginning to demand, and quite rightly so, that something be done, and if the Association is to retain its leadership in this regard some definite policy must be established.

It is obvious that to ultimately check or prevent mental diseases, their causes and modes of attack must be known. Our knowledge in this regard despite a century of mental experience is woefully lacking. Discoveries through research in other fields of medicine have thrown a flood of light upon many diseases, leading to their control and almost complete eradication—but with very few exceptions has such effort in the field of mental medicine been crowned with any degree of success.

"The Problem of Mental Disorders, A Study Undertaken by the Committee on Psychiatric Investigation—The National Research Council"—is almost an indictment of the members of the medical profession engaged in mental medicine for their lack of accomplishment in the field of research. Certainly it is a definite challenge to the members of this Association, and it is hoped and believed that it will serve as a great stimulus in future efforts. It is indeed an important contribution to the literature dealing with the problem of mental disease. Important not because it points to any great accomplishment, but important because it lays bare the fact that we can boast of practically no accomplishment.

All hospitals should be engaged in research. Nothing is more stimulating to the scientific spirit of the entire personnel and yields quite so large a dividend in worthwhile work as the knowledge that scientific truth is constantly being sought. Administrators can no longer afford to leave research largely to other specially equipped forces and agencies for this purpose, but must be thinking in experimental terms, for scientific knowledge largely comes to light as the result of experimental investigations.

In conclusion I have few specific recommendations to offer to the Association. While I heartily agree that administrative psychiatry in its broadest sense is a subject which deserves special consideration, I am not at all sure that it should be considered in a special section. The subject is so important, so all embracing, vitally touching our therapy at every point, that its consideration should be participated in by all those engaged in institutional practice.

The better plan would therefore seem to be that a certain part of the program of the general session should be devoted to the subject.

It is recommended that the Association again make the effort to set in motion some plan by which the Committee on Standards and Policies may carry on inspections of mental hospitals, grading them according to certain standards. If this could be done a real service would be rendered the mentally sick, and general medicine would be proportionately advanced.

To summarize I need only mention once more the four objectives which I consider the cardinal needs of psychiatry of tomorrow—the first of which is better medical education in our special field. Such education will not only equip the general practitioner so he may be able to treat many mental disorders, but will more fully acquaint him with our activities, and he possessing a broader knowledge of our peculiar problems will be in a better position to understand our methods and to cooperate more intelligently with us in the referring and commitment of mental patients, in which he must always bear an important and responsible part. Furthermore, through the interested practitioner, the public is sure to receive much of that enlightenment which we so earnestly desire to impart.

Hand and hand with this first need goes that of better understanding among psychiatrists of the problems of general medicine. After all, we must always be physicians first. This is the basis upon which every true specialty must rest. We must not think of ourselves as having submitted to an annoying although necessary apprenticeship in medicine in order to become something distinct and more important, but as doctors who must minister to the body to benefit the mind; doctors who are willing to look upon human beings amazingly complex; yet strangely integrated organisms; doctors who know how to elicit a complex but are willing to drain an abscess, empty a stomach or pass a catheter.

Nevertheless, however important the above needs there is yet a greater one—prevention. Prevention through education, vocational training, child guidance.

This embraces, of course, the great objective of mental hygiene, but mental hygiene must derive its greatest support from our pub-

lic institutions. Lectures to college groups, talks to social workers, classes, demonstrations, and educational articles released through the press for the benefit of the general public constitute almost as important a part of the program of preventive psychiatry as do out-patient mental clinics.

It is upon all of these agencies that we must depend for the vital task of keeping down the rising tide of mal-adjustment and mental disease.

Finally there is the ever present need of research. Where is there a greater opportunity for increasing our knowledge of the etiology of mental disease than among the thousands of patients in our institutions for mental diseases? Yet, how many of us are allowing this opportunity to pass unheeded, offering as excuse the all too evident fact of full routine of duty and manifold interruptions.

It is with humiliation that we are forced to confess that although much splendid work has already been done, a vast region remains unexplored and unexploited.

It is toward this hinterland of our great specialty that I would point, reminding the young adventurer as well as the seasoned veteran that here, as no where else in the whole realm of science, are new frontiers to conquer.

CHARLES FREDERICK WILLIAMS, M. D.,

PRESIDENT, 1934-1935.

A BIOGRAPHICAL SKETCH.

BY E. L. HORGER, M. D.

Dr. C. F. Williams has been acclaimed one of South Carolina's "history makers" and accorded the honor of being included among the eight most important persons in the state selected because of achievements in the face of obstacles and the use of talents for the good of humanity.

Charles Frederick Williams, M.D., was born August 6, 1875, in York County, South Carolina, the son of Leroy Russell Williams and Virginia Wallace Williams.

His preliminary education was secured in private schools and Bank's High School, and in 1899 his medical degree was conferred upon him by the University of Maryland.

He first practiced his profession in York, then in 1901 entered the medical corps of the United States Army where for two years he was acting assistant surgeon, stationed for a large part of the time in the Philippines. Leaving the army he took postgraduate work in Baltimore and in 1903 went into the general practice of medicine in Columbia. In the same year he married Miss May Wilson, of Manning, S. C., who passed away on June 3, 1932. He has three daughters and four grandsons. In 1908 he was elected to the newly created position of State Health Officer for South Carolina. Following his resignation from this office in 1911 he pursued postgraduate work in Europe and again took up internal medicine in Columbia.

On May 1, 1915, Dr. Williams assumed the duties as superintendent of the South Carolina State Hospital. The appointment to this position by Governor Richard I. Manning has proven to be a wise one and in filling it Dr. Williams has won for himself great distinction as a hospital administrator. Upon entering the field of

psychiatry he had had no special psychiatric training, but his previous varied experiences placed him in a position to realize the needs of the state in caring for the mentally sick and prepared him to meet the problems of an executive.

The hospital administration under Dr. Williams has been characterized by a steady improvement in the hospital plant, the medical care of the patients and the complete revision and modernization of all the laws with reference to the mentally sick.

Dr. Williams chose as his clinical director Dr. William C. Sandy, King's Park, N. Y., a man thoroughly trained in psychiatry. A resident and consulting staff were organized.

Remodeling, restoration and reorganization under the guiding hand of Dr. Williams have resulted in modern laws, modern buildings and modern methods of treatment. The development of the comparatively new section of the hospital for colored patients at State Park was begun. With the remodeling of the old buildings and the erection of many new structures there now exists a well-equipped and modern department for Negro men and women.

In January, 1923, Dr. Williams, realizing the importance of preventive medicine, had mental hygiene clinics established in various cities throughout the state. In the same year he was selected as professor of clinical psychiatry at the Medical College of South Carolina.

In 1934 Dr. Williams received a signal honor when the American Legion of South Carolina presented to him its much coveted award—the distinguished service plaque—in recognition of his worth and his unselfish contributions to the state.

Many positions of importance in the field of medicine have been bestowed upon him. He is past president of the Columbia Medical Society; past president, South Carolina Medical Association; past president, South Carolina Hospital Association; past president, South Carolina Conference on Social Work; and has served as vice-chairman, section on preventive medicine, American Medical Association.

His activities in civic and religious organizations have also merited recognition and honors. He is past president of the Columbia Community Chest; and past president, Columbia Rotary Club, having been elected a delegate to the International Convention of Rotarians at Vienna in 1931. For years he has been an elder in

the First Presbyterian Church in Columbia and takes a deep interest in all its affairs.

Dr. Williams became a member of The American Psychiatric Association in 1916 and has always been deeply interested in every phase of its activities. He served on many committees of the Association and was a member of the Council on two occasions; from 1926 through 1928 and from 1932 until he became president-elect in 1933.

The success achieved by this distinguished physician is due in no small part to his sincerity and sympathetic attitude, his kindness of heart, and his knowledge and deep understanding of human nature.

POST-ENCEPHALITIC BEHAVIOR DISORDERS.

A Ten Year Review of the Franklin School.*

By EARL D. BOND, M.D., and LAUREN H. SMITH, M.D.,
Philadelphia, Pa.

INTRODUCTION.

"The Treatment of Behavior Disorders Following Encephalitis" in the Franklin School of the Pennsylvania Hospital was described in a book published in 1931.† In this book a rather complete story was told which carried from 1924 to 1930. It now seems worth while to carry the story to 1935, especially since 1930 brought the unification of the hitherto separate boys' and girls' divisions in new quarters at the Institute. A diagram and footnote on page 27 of the 1931 book † explain the plans for the new school.

In this second set-up there were radical changes from the old plans. Boys and girls were brought together in school work, living and dining rooms and play activities. The supervision by nurses gave way to a home-like boarding school atmosphere; this in turn gave way to a transitional organization and lastly to the present environment which, we hope, combines the best points of the several older plans.

At present we wish to describe first "The Kinds of Treatment" and then "The Results of Treatment," including in our survey all of the 85 post-encephalitic children who have been admitted to the Franklin School in its ten years of activity.

A few sentences of definition and description may help the reader who is unfamiliar with earlier publications.

"Post-encephalitic" is here used in the broadest sense to include brain damage from trauma as well as from infection. This

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

† The Treatment of Behavior Disorders Following Encephalitis. Earl D. Bond, M. D., and Kenneth E. Appel, M. D. Published by the Commonwealth Fund, Division of Publications. New York, 1931.

damage seemed minute instead of gross in all of our cases. On admission there was evidence of a progressive lesion in one case only. In most cases after "encephalitis," or "the 'flu" or a blow on the head, came transient strabismus, paralyses of facial or limb muscles, disturbed breathing, disturbed sleep.

The changes in behavior were in the direction of restlessness, disobedience, aggressiveness, loss of fear of punishment, truancy, stealing, mawkish affection. The children became intolerable at home and at school and in foster homes.

The ages of the children ranged from 4 to 12, most of those admitted in late years being under 10. Their intelligence was rather high. A daily average census was 20. With the post-encephalitic there were always other children who showed similar behavior but no organic lesion.

THE KINDS OF TREATMENT.

The 1931 Régime.

The head of the school was a matron of middle age, who having a great interest in children's work, had through years of experience with exceptionally active children developed a high tolerance for children's irregular behavior. Two assistants, young adults of general college training, one female, one male, carried on direct supervision of the children's activities during the day and evening. Night supervision was covered by part-time college students selected for their natural judgment and ability in handling children. The formal school work was carried on as before, by the experienced teacher Mrs. Marian Paul who had been associated with the school since its beginning.

A social worker was for the first time available to close the gap between home and school.

The school now seemed to contain a new, and what seemed to be at first a better atmosphere. Attitudes of wide tolerance on the part of staff members gave the children a feeling of great freedom. Problems which had existed up to the time of admission seemed to subside when the child entered the school. Very soon these problems reappeared however, but little was done about them in a corrective way except by indirect influence, through attitudes,

talks, habit training activities or example. The answer to the problems was left in the psychiatric treatment situation. In spite of great laxity by intent in influencing or controlling behavior disorders, the problems continued to exist much as before. It was seen shortly that what was happening might be destructive, in place of constructive. The environment was so " easy " for the child, that no need existed for a change in behavior to take place. In addition so little anxiety remained within the consciousness of the children that they appeared to be less accessible or in less need of dependency on the psychiatrist in treatment interviews. The whole plan was based somewhat on the assumption that the behavior disorders in the children existed because of undue emotional stress and strain on the child, from the individuals or situation of its environment. Yet under a very protected free and easy environment, such behavior difficulties reappeared and persisted.

A Period of Transition (1932).

Because of this lack of immediate change in certain troublesome behavior in different situations plans for more complete and intensive psychotherapy were made. Up to this time finances and lack of trained psychiatrists had made it impossible to have every child under the constant supervision or treatment of one psychiatrist. The services of more trained psychiatrists were secured, and admissions were delayed or arranged at times, depending upon the psychiatric treatment time which might be available. Before long nearly all of the children had one to four psychotherapeutic treatment hours given them a week.

Nevertheless the situation seemed little different, and all indications pointed to a need for change in the school and " school home " situation as a whole. A need for special restrictions or limitations on certain children became very apparent. A gradual growth of such a change in plan and operation resulted in the next " type " of situation.

The 1933-1935 Régime.

The essential organization of the school, in this last development, was unchanged except for some slight changes in personnel. It has been " in existence " now for about two years.

1. CHANGES IN PERSONNEL.

Up to this point the matron had had charge of the school as a whole, with the experienced school teacher in more direct charge of the class room and associated activities. This led to a certain division of responsibility, and for this reason the entire Franklin School was placed in charge of the school teacher as principal. Under her an assistant teacher aided in the academic teaching, a young woman college graduate looked after housekeeping affairs and a male and female house father and house mother carried out supervision of general activities. Thus the general "home" problems and general "school" problems of behavior became more fused and under easier control. Part-time workers who had some outside interests were replaced with full time workers with only one interest, the school, and all personnel lived within the confines of the school. A much more unified coherent, smoothly functioning organization has resulted.

2. GENERAL MEDICAL SUPERVISION.

The general medical examination of the children was placed in the hands of a pediatrician. This doctor examined all children admitted and discharged from the school, supervised and cared for all physical illness, freeing the psychiatrists from any responsibility except the direct psychotherapeutic treatment of the children. This permitted a freer type of psychiatric approach to some of the more involved problems. The pediatrician and psychiatrists were always in close contact in any individual situation through special conference and other means of co-operative work.

3. THE PSYCHIATRIC TREATMENT.

For years finances made it impossible to have all children studied or treated fully by a psychiatrist. Gradually more children were treated, through co-operation with the Philadelphia Child Guidance Clinic, additions of psychiatrists to our own staff, and by volunteer psychiatrists. Although nearly all of the children were receiving treatment much of the work was by different workers among whom there was little correlation or collaboration. Finally, in the last year the services of one full time psychiatrist have been used for the treatment of most of the children, and our experience with

the results of treatment may be vastly richer because of this narrowing down of the work to few workers with more children. Not all of the children are seen. Approximately 90 per cent have one to five treatment hours with a psychiatrist. The others seem to benefit more by a general retraining in the school, or are here for a short time that will not allow the beginning of intensive treatment, or for other reasons are considered not particularly in need of special interviews at the moment.

There has been no effort to evaluate the different psychiatric approaches in the psychotherapy of children. General re-education through interviews, play technique, with or without interpretations, and psychoanalytic treatment have been used.

4. A CONSTRUCTIVE RESTRICTIVE TOLERANT ENVIRONMENT.

The present environment is not lax. There is a definite level of conformation of behavior that the children know is expected of them. They realize that temper tantrums, negative behavior in general or other social activity that interferes with the activity or happiness of other children cannot be completely disregarded. At the time of such disorder they may need to be excluded from groups, or sent to their rooms, or placed at work or play in some section of the school where they will not disturb others, or under special supervision. Yet at the same time they realize that the whole situation means nothing to staff members personally or individually. Their individual problem in such behavior is understood, and they are conscious of this understanding. The restriction or control given is that which they must face in any environment, particularly the environment to which they must return. The plan of restriction is a real plan, first for the benefit and proper function of the school as a whole, but particularly modified for the child involved. In other words, what may be done for a temper tantrum for one child may be the opposite to that done for another, because of what may be known to the staff (see conferences later) about what is back of that temper tantrum. The children realize there are reasons why basically they are treated similarly, yet special exceptions and differences are allowed; and surprising as it may seem they accept these differences easily. As a result of these tolerant restrictions they cannot "get away" with constant

behavior disorder. Whatever these restrictions mean to them, or whatever reaction they have to their own behavior or how it is limited, they are encouraged to discuss and work out as their problem with their psychiatrist in treatment interviews.

5. CONFERENCES.

Through the use of staff conferences more progress has been made toward an integrated smooth functioning of the school organization. The full time psychiatrist gave lectures or held group discussions with staff members, taking up theoretical psychiatric aspects of behavior problems, as related to the dynamics of mechanisms and behavior reactions. Alternating with such weekly lectures or in conjunction with them the entire staff would meet and discuss practical problems that arose in the day to day operation of the school. By such study and discussion uniform attitudes were developed toward different school situations. A third type of conference was held in regard to individual children. The progress a child might be making, the immediate problems which were evident, the difficulties in handling the child, or any other aspect of the child's individuality or situations were taken up in detail. These conferences would be repeated as often as needed for any one child, upon the request of any staff member. As a result uniform plans of meeting each child more than half way were worked out, and definite plans for the modification of the child's behavior were laid down, and changed at any time there was reasonable indication for so doing. Finally, this results in attacking each child according to his problem, handling it as an individual situation to be fitted into the school régime as a whole, or in making special modifications in the school régime for such needs as were evident in the individual situation.

6. GENERAL STUDIES OF CHILDREN.

The pediatrician conducted full physical and neurological examinations on each child, and thorough laboratory examinations. In these studies special investigations were made to determine any special endocrine or organic physiologic differences which might be of significance.

Psychological examinations were given each child, and after improvement or other change in adjustment was evident, they were occasionally repeated, to ascertain the effect or significance of such change.

One reason for the general negative findings characteristic of these children, is that they are a highly selected group. Admissions were always limited (some exceptions crept in) to children of no physical handicap or deformities, or special medical organic disease, or neurological residual (such as Parkinsonism), and to children of average or better than average intelligence.

7. THE MEANING OF THE SCHOOL TO THE CHILD.

First, the child found himself transferred from an environment which may have been highly insecure, emotional, cruel, or intolerant, into a situation quite the opposite. In the new situation in the school the child could find tolerance regardless of conduct, security in the constancy of attitudes of adults about him. Innate conflict or insecurity still experienced regardless of what reality security was found could also be worked out in treatment situations. Changes in life situations which before may have been traumatic or overwhelming were built up to and prepared for, through information given them on which they could depend. This held true even in the matter of visits, variations, knowledge of real factors in their problems, length of time they were to stay, when they might plan to go home, or other things of importance in their lives.

Second, the child found himself in an environment that showed him emotional experiences which had formerly been alarming, but in the school existed as common experiences to many others like himself. The children seemed to share an understanding of the need to respect problems which might exist in each other. The younger children received much supervision and even affection from those older. Criticism of bad behavior by their fellows was direct, adequate, but as often constructive as destructive. It became important in the group activities to work for acceptance from the group. While in quarantine because of an epidemic of infectious disease, the behavior was unusually good; they seemed to feel a common problem which must be met by special cooperation.

Third, in the school the children found a certain independence given them. Many things they had to do for themselves, if such things were to be done at all, as no one would do such duties or services for them. They were not kept from doing things for themselves just because they did them clumsily or got in the way of adults. As a result real constructive independence in thinking, planning and doing showed up in many children in whom it had not been in evidence previously.

Fourth, the school has been the means of acquisition of insight for the children. Most of them realize from their associations in the school, and the attitude found there, that they are sick, or have difficulties and need help. They can forget the attitudes shown before, that they were just bad, or unwanted, that they were considered so different, or so abnormal. They look forward to going home in a new way, under different conditions than before.

The school has had a purpose in existing not only for the direct results in working with the children here, but in other ways. The experience gained in the school can be useful to the school and community organization through transmission in lectures, study groups, etc. Lessons learned in the Franklin School may make more easy the handling of behavior irregularities in other situations.

Theological students have interned for three months as attendants in the Franklin School. This experience has given them great insight into motivations and dynamics in human behavior. It is obvious how widely they will be able to use this broadening experience in their church and community work.

Graduate nurses of the post-graduate school of the Pennsylvania Hospital School of Nursing have each spent two weeks working full time in the school. Their experience can prove useful in later work in hospitals, camps, communities, etc.

Teachers have visited frequently for observation and gained insight into possible variations in classroom attitudes and reactions.

The children differentiated between the administrative doctor who was called by one of the girls " the big boss," and the doctors who conducted treatment—known to be in no way responsible for the life or activities in the school daily routine.

In so far as possible, some years later it will be important to find out what contrasts might exist in adjustment of children who

may be classed as treated by different psychotherapeutic methods, or who really had no direct psychotherapy while in the school.

GENERAL CONCLUSIONS.

I. Analysis of Different Plans.

What plan has seemed to work best in operating a specialized school of this type? This may not be directly answered, because of the variables in the situation in different years, but some impressions have been gained which may be informative. In listing the type of régime we find them as follows:

1. Strict hospital routine with nurse executive.
2. Modified hospital routine with nursing supervision but teacher or psychologist as executive.
3. Easy boarding school routine with matron as executive (responsibility divided with teacher) (1931).
4. Constructive restrictive boarding school routine with teacher as single executive (1933-35).

The strict hospital routine served its purpose well, in starting the school on a scientific medical basis, and was a natural beginning plan with the school as a unit of a hospital situation. Follow-up studies indicate generally that results under this plan are as good or better than any of the other three types. It is true that not enough responsibilities were given to the nurses in charge, too much of the routine depended on "house orders" and routine procedures; the whole situation was too rigid for children of such mercurial emotional instability; individualization was lacking, probably due to lack of experience on the part of the staff rather than inherent fault in this plan. It is significant that the present (or fourth) plan has swung far toward the definite routine first seen in this plan.

The second plan was hardly more than transitional experiments of short duration and quickly showed its essential lack of organization and effectiveness.

The third plan was a valuable experiment and really gave birth to the realization of the need for great tolerance and special individualization with the children. Yet it lacked unity because of divided responsibility in the staff and especially because of the weakness of the school environmental control or influence on the daily routine for the child.

The fourth, or present type, described in detail on previous pages combines the experience of the former trial and error periods. Doubtless improvement on it in the future will rapidly be possible but at present it exists as we may now outline it in summary.

II. Summary of Characteristics of Present Régime.

A. Unified administration, teaching and training.

B. Medical studies and care separate from psychiatric treatment.

C. Psycho-therapy for each child in proportion to problem presented, in a situation entirely set apart from the school as a unit.

D. Daily routine and training environment

1. Constructive
2. Restrictive
3. Tolerant and individualized

E. Educative conferences of entire staff resulting in unified plan for school and for each pupil.

THE RESULTS OF TREATMENT.

Only those cases are considered here in which encephalitis or a brain damage could be reasonably inferred. Of these 85 have been admitted and 9 are still in the school. Of the 76 who have been discharged, investigation shows that 20 (26 per cent) can be considered to have recovered the position which they held before the illness.

Anyone who has worked with children knows the difficulties in the way of estimating results of treatment. Some rule of thumb is necessary. Our rule is that when a child's improvement began in school and when at home for some years after discharge he behaved as did the rest of his family, he was to be considered as well. When there were brothers and sisters in the home improvement was easier to estimate, because so often the maladjustment after encephalitis was described in terms of a child who deviated from the children near him, who could not possibly "get on with the others," who was no longer "one of them."

Social workers from 1930 to 1933 surveyed many of these cases in home conditions, in Philadelphia but also in other cities. They of course had an advantage when the families were those of

children admitted in these years, as they had studied the admission situation, seen the parents on visiting days and kept in touch after discharge. Sometimes we have had to depend upon letters from parents or from case work agencies at a distance.

Good Results.

A discussion of the 20 who have improved most will not exactly record the benefits obtained from the school. Many children changed remarkably for the better in school and then went to pieces under home conditions. On the other hand the final recovery of a few children was due to a change for the better at home for which of course the school does not claim credit.

There is much that is convincing in the 20 who changed for the better, as will be seen by the following comments.

The first is very clear. R. C.*, a clean and obedient boy, had encephalitis at five, after which he became restless, reckless, aggressive, "could not get along with other children." He did well for nearly six months at the Franklin School and then returned to his home where he is "no more trouble than his five brothers and sisters."

Pietro * was considered "doubtful" in 1930 after two years at home. Then he got a good job on the railroad and worked steadily and well for another two years until he was laid off in the depression. Since then he has hitch-hiked about the country. Lately he has been an acceptable member of his family, working when there is anything to do.

Morgan,* who "couldn't get on with other children," is now a Boy Scout, called "o.k. by the leader," doing fairly well at school (non-reader) and very well at home in spite of a psychotic mother.

Julia,* who learned neatness and improved her behavior in the school, has done well at home for five years. At first tricky and deceptive in bad surroundings she has become an excellent housekeeper "sympathetically dealing with her difficult mother and sister."

Harold,* William,* and John H.,* reported as having made "excellent" recoveries in 1930, have improved their positions in

* Reported in "The Treatment of Behavior Disorders Following Encephalitis."

the following five years. One is a successful technician and chairman of his church committee; another has completely stopped his nervous twitching, is graduating from high school with fine all around standing; the third is "completely adjusted" at high school.

Others report progress at home in a few words: "satisfactory" (E. S.), "acceptable at home and school although home conditions are worse" (Alex B), "doing well, assists a store-keeper" (M. C.), "getting on well" (Eric), "a changed boy" (H. P.).

In three cases the boys are putting up good struggles against over-protective mothers. M. C.* is behaving well, excelling in school, making many friends and resenting his mother's over-solicitousness. Julius* is behaving well but is too young for his age because his mother fights off playmates and ties him close. L. Mc. went back to "an impossible mother" but shows "a definite change for the good" according to a very critical social worker.

Ann J. shows consistent improvement although her mother's isolation keeps her away from usual contacts. She attends school. She has taken money from her mother's purse, and like her mother, likes to wander about alone. However this is a great change for the better from the pre-school disobedience which "could not be controlled by punishment or indulgence."

Emmanuel* was considered a poor result in 1930. He was running away from home, the only black sheep of a family of seven. He is an expert in thumbing his way over the country and has won the amused admiration of his parents at his ability. He was arrested once for sleeping in an empty house. Now he has a good record in a C. C. C. camp.

In three cases boys went home into changed families, Mel. and F. A. S. to new step-mothers. While the school started them in good behavior the new conditions confirmed it. And James C.,* reported before as a failure, has been saved by his mother's getting a divorce from a drunken father. James did well in school, did badly the moment he went back to his father, did extremely well as soon as his father left. He is dependable and well employed.

Admittedly some of these recoveries are not what we should like them to be, and some of them show that the Franklin School alone was not responsible for the gains made. But the school gave

them a start. Of the 20 it can fairly be said that they are doing as well, if not better, than their brothers and sisters and other children in the neighborhood. And if the work of the school seemed bolstered by other conditions to give it an undue credit, see in the next group how many times the good results of school have been ruined by later conditions not its fault.

Poor Results.

Of the 58 children whose outcomes we summarize now, all but 5 did well at the school—extremely well or moderately well. But when they returned to their homes or places in the community something went wrong. In some cases the school treatment evidently did not go deeply; in others the forces outside were strong enough to overcome any good that might have been taken from the school. How some children continue to get on well in some families and in some neighborhoods is a mystery. It is sad to confirm in our observations on these children the statement that normal children would go wrong exposed to certain frequent destructive influences of our civilization. But there is room for optimism in our judgment of the success of many children whose re-adjustments to life are labelled poor—some of them might better be labelled doubtful.

What could have been expected of Jim, turned back to a father who was cruel, alcoholic, a beggar and to an association with two feeble-minded brothers who like himself were unwanted children? Even in these conditions this boy got on well with the neighbors and had as his chief fault running away. "A truant is a good boy running away from a bad school."

A. M. returned to gloomy and dissatisfied parents (a forced marriage): his mother was too lenient and his father too strict. He has taken money at home, but he gets on well in school and in the neighborhood.

Sadie was restless, fighting, insubordinate, unmanageable at home: at the Franklin School she improved remarkably: at home again she continued in her good ways for three weeks—really a praiseworthy record. Her mother described her management of her four children as one of "whipping and hollering": she favored the others against Sadie: she fought the father. The

family is to be evicted for non-payment of rent. Sadie now fights and screams as before, but she gets on well at school.

Some children had to face discouraging physical conditions. Only three children but of the total 85 showed signs of advancing neurological lesions—but in these the expressionless face, respiratory tics and increasing sleepiness made adjustments to none too good home situations unsatisfactory. These children are giving little trouble, however. In one boy whose diagnosis was doubtful, there finally appeared a rapidly developing brain abscess or tumor (or gross encephalitis) which led to his death. Two other boys have died of intercurrent diseases.

In several cases the report is of fair behavior. In one case a psychiatrist is sure that "the trouble is all due to endocrines."

In several cases the report is unmitigatedly bad. Sometimes this needs looking into. A boy whose behavior at home and school was "impossible," who viciously attacked his sisters and parents, showed at Franklin School from the first no behavior disturbance at all. Taken home after four months against advice—and to a home that seemed to us a very good one—his "impossible" behavior began again.

To Other Institutions.

Failure to produce a lasting change in the children's behavior is shown most convincingly by the fact that 33 were later taken to state hospitals, schools for feeble-minded or reformatory institutions. Even here the last reports are often encouraging. Five have been paroled to their homes, and one to a foster home, where they are doing well enough: four others are reported as doing very well in the institution.

M. H.* did well for six months at home: then he embarked on a life of stealing and "bumming." At Atlantic City he walked boldly and openly through a crowd to a spot were two monkeys were tethered: he loosed them and carried them some miles toward Philadelphia: in jail one night, he stole a watch next day. In hurried succession he appeared before the Juvenile Court, was sent to a Detention Home, Protectory, two private and two public hospitals for mental diseases. It is reported that at one of these hospitals he caused such trouble as to result in the resignation of the whole staff. He is now in a state hospital.

Roger, the most intelligent of the children, ran away from the Franklin School, wandered from Duluth to Boston, was sent to an industrial school in New York, paroled first to his mother and then to a foster home, proved unmanageable and ran away to be arrested in San Francisco for petty larceny. Twice in California he was committed to an industrial school and then returned to a similar school in New York from which he escaped. "He is an attractive, smiling puzzle; in his wanderings he frequents the best hotels."

III. Results.

1. Results of the hospital school treatment of post-encephalitic and post-traumatic cases may be stated as good 20, poor 56, still in school 9.

2. A tendency to improved behavior (ranging from a moderately increased ability to get on with other children to a complete social adjustment) was seen in 80 out of 85 cases.

3. Improved behavior was often shown after discharge for a certain time: it often broke down under the stress of alcoholic fathers, infantile mothers, criminal neighborhoods. If obvious difficulties at home could have been removed, the good results would be multiplied.

4. Parkinsonian symptoms appeared in only three cases in follow-up periods varying from nine to one years.

5. There were three deaths in the nine year follow-up period—one from brain tumor (probably), one from pneumonia, one unknown.

6. In treating 85 children many times that number were protected from the disintegrating influences of the post-encephalitic.

7. On the face of the returns it is not obvious what kind of régime, of treatment, produced the best results. There were too many variables—time being most important.

DISCUSSION.

Dr. William C. Garvin (Binghamton, N. Y.).—Dr. Bond's paper is a real contribution to the treatment of a special group of encephalitic children, a subject in which I have been interested for some years. While at Kings Park, we began to have committed to us increasing numbers of children affected with encephalitis. The general hospitals did not want them on account of their disturbed behavior and lack of facilities for their care. It did

not seem right to us to have them lodged on wards with adult patients. Finally, in 1923, Commissioner Haviland permitted us to evacuate two 25 patient cottages which we arranged for the housing of these children. Mrs. Eleanor Clark Slagle was consulted and rendered very valuable assistance in arranging a program of habit training, amusements and recreation. A special playground was provided. The group ranged up to 16 years. Dr. Raynor, my successor, in 1924 further developed the scheme and eventually the two cottages were filled by patients. Ultimately grade teachers were secured and a program of scholastic studies inaugurated.

The 50-bed unit at Kings Park proved inadequate to take care of all encephalitic children demanding admission. Commissioner Parsons finally decided to establish a larger unit at Rockland State Hospital and the Commissioner of Architecture and the Committee on Construction went to work on the plans. A six cottage unit, housing 25 children each, with connecting corridors, assembly hall and gymnasium, occupational therapy and scholastic class rooms, dining rooms and kitchen, has been erected and will soon be ready for occupancy. A special playground for the children will be provided. I am sure Dr. Blaisdell, the superintendent at Rockland, will be very glad to have members of the Association visit his institution.

Both Dr. Bond and Dr. Klopf deserve great credit for establishing their units for the care and treatment of various mental conditions in children.

Dr. Russell E. Blaisdell (Orangeburg, N. Y.).—Yes, indeed, we will be very glad to have any one who is interested come to Rockland and see our set-up. Dr. Garvin has already described it very well. We hope we may not have to take the severe post-encephalitic children but some of the major behavior problem cases and psychotic children suffering from incipient dementia præcox, manic-depressive psychosis or psychoneuroses. We shall try to keep this unit for the type of cases I have mentioned. It may not work out that way because we do not know yet just what material we will have to care for. It so happens that Rockland State Hospital has a great many small wards, wards for 25 to 30 patients, and 25 of these small wards are in the reception service. Should more of the severe types of post-encephalitic disorders come to Rockland, we may establish a special ward for them in the reception service.

Dr. Alberta S. Guibord (Boston).—I would like to ask if Dr. Bond, or any other doctors who have had experience, will tell us specifically how they handle these intensely disturbing motor difficulties which we meet in some of these children. Some of them are almost unbearable to live with or to have around.

Chairman Cheney.—You mean they have physical symptoms.

Dr. Guibord.—I refer to constant motor activity, rapid shift of attention and interest, purposely meddling with objects, destructive tendencies, etc. I thought perhaps we might get an idea just how specifically one would go about managing them so that they would be less disturbing elements in family life.

DR. EARL D. BOND (Philadelphia).—May I speak first to the last question. The motor difficulties were handled by the group routine. There was something for these children to do every 15 minutes of the day, and the day was parceled out in 15-minute intervals between ordinary school work, playgrounds, occupational therapy, by all sorts of different appointments. Children who were unbearable at home because of the constant restlessness fitted into such a program and showed ability to play and mix with other children who had just as much or more restlessness as they had under the proper supervision. Certainly I have no suggestions as to how such a child could be managed at home.

Then there has been an attempt to try to understand if possible what was behind some of the more destructive tendencies in that motor restlessness, and I think that the psychiatric interview, the time that the child feels is his own, two hours or three hours a week with a psychiatrist, has enabled a child to get rid of some of the pressure that leads to destructive activity.

Of course, we have been familiar with the Kings Park and the Allentown work, and with the plans for Rockland. In our selection, we may have avoided the Parkinsonian group, the more severe organic cases and the feebleminded, but we haven't put up any bars against bad behavior, and if there is any behavior in children that is worse than the behavior of the children we have taken in, I should hate to see it.

A THEORY OF CHAOTIC SEXUALITY.

By AARON J. ROSANOFF, M.D.

Researches in the field of genetics have given us a glimpse of the mechanism of sex determination. It seems now well established that in man, as in many animals, the mature ovum always contains an X-chromosome; whereas spermatozoa are of two kinds, those with and those without an X-chromosome. Fertilization by a spermatozoon lacking an X-chromosome determines maleness, and fertilization by an X-chromosome-bearing spermatozoon determines femaleness.

Obviously the X-chromosomes perform a highly important function in connection with sex determination. However, there is ample evidence to the effect that sex determination is not their sole function; such evidence being presented by many characters which, though sex-linked in their manner of hereditary transmission, have little or nothing to do with sex.

There is also ample evidence indicating that the X-chromosomes are not the sole bearers of sex determining factors; such factors being contained in the autosomes as well. In the past few years a whole series of studies in the field of experimental genetics have yielded data suggesting that sex is determined rather by a balancing of factors contained both in the autosomes and in the X-chromosomes. The sex factors in the autosomes make for maleness; those in the X-chromosomes for femaleness.*

Hence, in a fertilized ovum with but one X-chromosome, the factors for maleness outweigh those for femaleness; while the opposite is true of a fertilized ovum containing two X-chromosomes.

As all know, sex differentiation is not to be observed in the young embryo, in which, for a time, the rudimentary sex organs are the same for both sexes.

It is equally well known that sex differentiation is not complete even at full maturity, rudimentary female organs being regularly present in the male, and rudimentary male ones in the female.

* T. H. Morgan. *Embryology and Genetics.* New York, 1934.

There is considerable variation within normal limits in the prominence of these rudimentary vestiges; and in the rare cases of so-called pseudo-hermaphroditism, and in the still rarer ones of true hermaphroditism, these variations attain pathologic degrees.

In other words, the balancing of the genetic factors which make, respectively, for maleness and for femaleness, is not always the same and it may be judged that the pathologic degrees of ill-balance are rare for the reason that they lead to sterility and thus tend to be systematically weeded out in the course of evolution.

As we turn our attention to secondary sex characters, the question arises to what extent their determination is an integral part of the above described mechanism, and to what extent they are determined by gene factors which are related to the factors of primary sex characters merely by linkage in the chromosomes.

From general observation in man one certainly gains the impression that the amount of overlapping of secondary sex characters between the two sexes is far greater than it is in the case of the primary sex characters. It would seem that, for obvious reasons, the elimination of such inter-sex types has not been so thorough in the course of evolution.

However this may be, if our impression is correct as to the wider range of variation of secondary as compared with primary sex characters, the fact would be significant in that it would point to at least a partial independence of the genetic origins of the two groups of characters.

The theory about to be presented is concerned not so much with contrasts between the sexes in regard to primary or secondary physical sex characters, but rather with psychic contrasts.

In this connection general observation, with special reference to psychiatric clinical material, creates the impression of still greater overlapping between the sexes, a wider range of variation in each sex, and, therefore, a still greater independence of genetic origins.

The special reference is, of course, to cases of homosexuality, manifest and latent, conscious and unconscious, and variable both quantitatively and qualitatively. The descriptions of homosexuality in the psychiatric literature, especially in the older literature, often emphasize an alleged close correlation between it and various secondary physical sexual characters belonging to the opposite sex. However, a careful scrutiny of the findings in a large unselected

series of cases fails to reveal any close correlation. The early discussions would seem to be based rather on an illusion of such a correlation based on the frequent presence in homosexuals not of secondary sexual physical characters belonging to the opposite sex, but of mannerisms, interests, dress, and the like—in other words, manifestations of psychic rather than physical nature.

Moreover, one commonly sees individuals with striking secondary sexual physical characters belonging to the opposite sex and even with various degrees of hermaphroditism, who are without demonstrable homosexual leanings.

Although homosexuality constitutes the point of departure for the theory here proposed, other sexual anomalies are included as basic material. This would seem to be justified in the light of the general clinical experience which suggests some sort of a relationship between homosexuality and such anomalies as masturbation of pathologic degree and persistence, exhibitionism, fetichism, sadism, masochism, impotence and frigidity, a restless and ever unsatisfied promiscuity, and the like.

The credit belongs to Freud, Stekel, and others of the psychoanalytic school for discovering and demonstrating the existence of repressed or unconscious homosexuality together with its various and complicated manifestations.

The content of the hallucinatory and delusional trends in many cases of paranoia and paranoid conditions is frankly homosexual, and the clinical histories in such cases are usually characterized by severe and intractable maladjustments in the sphere of love life.

In other cases of such conditions, as well as in some non-psychotic cases, such as those of paranoid or schizoid temperament, and various obsessions, phobias, anxiety states, suicidal tendency, alcoholism, drug addiction, criminality and the like, the fundamental sexual anomaly is not superficially in evidence, but may be more or less readily brought to light with the aid of psychoanalytic procedure.

Beyond the borders of the domain, in which is contained the psychiatric clinical material, there are undoubtedly vast numbers of cases of marital difficulties, domestic unhappiness, vocational maladjustments, and sublimations characterized by hobbies, artistic interests, special choice of career, etc., which, upon close investigation, prove to be traceable to a fundamental sexual anomaly.

We shall not enter here upon a discussion of the question, to what extent sexual anomalies are inborn and to what extent they are determined by childhood or later environments. Indeed, it is more than doubtful if, in the present state of our knowledge, this question can be answered.

It should be stated, however, that for the purposes of this theory, it is assumed that hereditary or germinal factors play a more or less important part in the etiology of such anomalies.

The various degrees of ill-balance between the factors of maleness and femaleness in psycho-sexual make-up give rise to conflicts, external, or internal, or both.

We designate those conflicts as external which play between the instinctive tendencies of the individual, on the one hand, and, on the other, the mores which are imposed by religion, convention and law. It should be noted that such conflicts exist not only for persons of pathologic psycho-sexual make-up, but frequently also for persons whose psycho-sexual make-up must be regarded as normal.

We designate those conflicts as internal which occur on the basis of inborn psycho-sexual ill-balance and which play mainly between the factors within the individual which make for maleness and those which make for femaleness.

It would seem unnecessary to labor the obvious point that the human race is definitely committed to a gregarious mode of existence. The trend of history seems to be in the direction of an ever closer integration of human society.

It would seem, further, that in various periods in the history of a nation, and in various nations or geographical groups at any time, the prevailing economic and sociologic conditions have an influence on mores, rooted in the special needs of time and place. Hence the changes and differences in mores.

Perhaps at some time in the future, when the final and complete integration of human society has been accomplished and when, with the progress of biologic science, a more rational and more authoritative guidance in these matters shall be available, there will be established a harmony between the instinctive tendencies of individuals and the best interests of the race, such as would reduce or largely eliminate the conflicts, both external and internal, on the basis of which unhappiness and mental illness arise.

At least it seems logical to assume that, as external conflicts are disposed of in so far as they are based on scientifically unsound mores, the resulting freer play of sexual selection and sexual life should release and hasten the effect of the forces of evolution.

The fundamental feature of the theory here proposed is based on innumerable observations, made in all historic times, of cases in which a striking disharmony exists between the psycho-sexual make-up, on the one hand, and, on the other, both the primary and secondary sexual characters. It is based further on the more recent observations of various degrees and kinds of such disharmony. Such observations indicate that, if the disharmony is to be attributed in some measure to hereditary or germinal factors, such factors for psycho-sexual make-up, though they may be more or less linked to the factors for physical sexuality, must be to some extent independently transmitted. The known facts would seem to indicate also that the psycho-sexual factors for maleness and for femaleness present quantitative variations as well.

The assumption of linkage in chromosomes, as between the psychic and physical factors, is forced by the fact that, after all, there is a close correspondence and no marked disharmony between them in the great majority of individuals. Therefore, the further assumption seems justified that the psycho-sexual factors for maleness and for femaleness are localized, like the factors for the primary sex characters, in the autosomes and in the X-chromosomes, respectively.

If we designate a strong factor for maleness by " M," a weak one by " m "; a strong factor for femaleness by " F," and a weak one by " f," it will be seen that six possible types of males and nine possible types of females may thus be distinguished with reference to psycho-sexual make-up.

It is not suggested here that these assumptions would afford an explanation of all the complexities of sexual make-up that may be observed. They represent merely the simplest possible theoretic formulation that might be suggested.

The six psycho-sexual types of males are accordingly to be represented by the following symbols: MMF, MMf, MmF, Mmf, mmF, mmf.

The nine psycho-sexual types of females are to be represented by the following symbols: MMFF, MMFf, MMff, MmFF, MmFf, Mmff, mmFF, mmFf, mmff.

Among these psycho-sexual types of males and females there would be fifty-four possible types of matings. The following list of biologic formulas illustrates the various matings together with the theoretically possible psycho-sexual types of resulting offspring:

1. MMF × MMFF = MMF + MMFF
2. MMF × MMFf = MMF + MMf + MMFF + MMFf
3. MMF × MMff = MMf + MMFf
4. MMF × MmFF = MMF + MmF + MMFF + MmFF
5. MMF × MmFf = MMF + MMf + MmF + Mmf + MMFF + MMFf + MmFF + MmFf
6. MMF × Mmff = MMf + Mmf + MMFf + MmFf
7. MMF × mmFF = MmF + MmFF
8. MMF × mmFf = MmF + Mmf + MmFF + MmFf
9. MMF × mmff = Mmf + MmFf
10. MMf × MMFF = MMF + MMFf
11. MMf × MMFf = MMF + MMf + MMFf + MMff
12. MMf × MMff = MMf + MMff
13. MMf × MmFF = MMF + MmF + MMFf + MmFf
14. MMf × MmFf = MMF + MMf + MmF + Mmf + MMFf + MMff + MmFf + Mmff
15. MMf × Mmff = MMf + Mmf + MMff + Mmff
16. MMf × mmFF = MmF + MmFf
17. MMf × mmFf = MmF + Mmf + MmFf + Mmff
18. MMf × mmff = Mmf + Mmff
19. MmF × MMFF = MMF + MmF + MMFF + MmFF
20. MmF × MMFf = MMF + MMf + MmF + Mmf + MMFF + MMFf + MmFF + MmFf
21. MmF × MMff = MMf + Mmf + MMFf + MmFf
22. MmF × MmFF = MMF + 2MmF + mmF + MMFF + 2MmFF + mmFF
23. MmF × MmFf = MMF + MMf + 2MmF + 2Mmf + mmF + mmf + MMFF + MMFf + 2MmFF + 2MmFf + mmFF + mmFf
24. MmF × Mmff = MMf + 2Mmf + mmf + MMFf + 2MmFf + mmFf
25. MmF × mmFF = MmF + mmF + MmFF + mmFF
26. MmF × mmFf = MmF + Mmf + mmF + mmf + MmFF + MmFf + mmFF + mmFf
27. MmF × mmff = Mmf + mmf + MmFf + mmFf
28. Mmf × MMFF = MMF + MmF + MMFf + MmFf
29. Mmf × MMFf = MMF + MMf + MmF + Mmf + MMFf + MMff + MmFf + Mmff
30. Mmf × MMff = MMf + Mmf + MMff + Mmff
31. Mmf × MmFF = MMF + 2MmF + mmF + MMFf + 2MmFf + mmFf

32. $Mmf \times MmFf = MMF + MMf + 2MmF + 2Mmf + mmF + mmf + MMFf + MMff + 2MmFf + 2Mmff + mmFf + mmff$
33. $Mmf \times Mmff = MMf + 2Mmf + mmf + MMff + 2Mmff + mmff$
34. $Mmf \times mmFF = MmF + mmF + MmFf + mmFf$
35. $Mmf \times mmFf = MmF + Mmf + mmF + mmf + MmFf + Mmff + mmFf + mmff$
36. $Mmf \times mmff = Mmf + mmf + Mmff + mmff$
37. $mmF \times MMFF = MmF + MmFF$
38. $mmF \times MMFf = MmF + Mmf + MmFF + MmFf$
39. $mmF \times MMff = Mmf + MmFf$
40. $mmF \times MmFF = MmF + mmF + MmFF + mmFF$
41. $mmF \times MmFf = MmF + Mmf + mmF + mmf + MmFF + MmFf + mmFF + mmFf$
42. $mmF \times Mmff = Mmf + mmf + MmFf + mmFf$
43. $mmF \times mmFF = mmF + mmFF$
44. $mmF \times mmFf = mmF + mmf + mmFF + mmFf$
45. $mmF \times mmff = mmf + mmFf$
46. $mmf \times MMFF = MmF + MmFf$
47. $mmf \times MMFf = MmF + Mmf + MmFf + Mmff$
48. $mmf \times MMff = Mmf + Mmff$
49. $mmf \times MmFF = MmF + mmF + MmFf + mmFf$
50. $mmf \times MmFf = MmF + Mmf + mmF + mmf + MmFf + Mmff + mmFf + mmff$
51. $mmf \times Mmff = Mmf + mmf + Mmff + mmff$
52. $mmf \times mmFF = mmF + mmFf$
53. $mmf \times mmFf = mmF + mmf + mmFf + mmff$
54. $mmf \times mmff = mmf + mmff$

There is no basis in observation or experience for the further speculation as to which of the above symbols represent the most thoroughly harmonized psycho-sexual make-ups; or which of them represent psycho-sexual make-ups which would fall within the limits of normality in that respect. The theory merely assumes that such types as are represented by the symbols mmF and MMff are extremely homosexual. From the above formulas it will be seen that extremely homosexual individuals may be the offspring of approximately normal parents, and vice-versa.

In other words, in so far as anomalies of sexual make-up are of hereditary or germinal origin, their transmission from generation to generation is complicated and is characterized by a wider range of variation in females as compared with males.

ENCEPHALOGRAPHIC STUDIES IN MENTAL DISEASE.*

An Analysis of 152 Cases.†

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Within recent years the utilization of cerebral pneumography, and in particular encephalography, in the determination and evaluation of the character and extent of intracranial pathology, has progressed with such rapid and broad strides that to enumerate the many investigators would occupy much space in attesting to the validity and importance of the procedure. To mention but a few contributions which have been instrumental in the development of the clinical applications of encephalography one must include the work of Dandy,[1] Bingel,[2] Goette,[3] Liberson,[4] Pancoast,[5] Pendergrass,[6] Fay,[7] Meyer,[8] Dixon and Ebaugh,[9] and the excellent anatomico-encephalographic correlations of Dyke and Davidoff.[10]

Gross pathologic changes such as are observed in brain tumor, dementia paralytica, porencephaly and hydrocephalus are very readily ascertained by encephalography. The recognition of less obvious and less striking changes, as would result from a diffuse, minimal cell change resulting in atrophic manifestations of varying degree, has been made possible by the use of fine focus X-ray tubes,

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Bucky diaphragm, stereoscopic views and the advance in the interpretation of encephalograms. That slight retraction of the margins of the cortex may occur as the result of minute areas of ganglion cell loss, has been pointed out by the Vogts.[11] Josephy [12] is rather emphatic in attributing the mental phenomena occurring in schizophrenia to definite, regularly appearing pathologic changes in the cortex. He notes fatty degeneration and sclerosis of the ganglion cells, and focal cell losses producing a disturbance in the cortical architecture. The work of Hechst [13] confirms and expands the tenets of Josephy. Winkelman [14] has found parenchymal changes in the cortex of cases of schizophrenia, ascribable, he feels, to anoxemic phenomena, the result of endarteritic changes in the small blood vessels. He also calls attention to the common finding of cortical retractions. It is to these finer cellular changes which produce disturbances in the cerebral fabric that we have been directing encephalography as a means of distinguishing pathology in the living subject. Obviously there must be, for comparison, a standardized, generally accepted concept of what constitutes a normal encephalogram. This has been established by the work of a multitude of observers and by the conclusion of the Encephalographic Committee [15] for the standardization of encephalography.

Our purpose has been to determine the existence of pathologic changes by encephalography in the psychoses of so-called functional origin and to establish evidence of an organic basis for the mental abnormalities occurring. By means of encephalography, definite structural defects of the brain have been demonstrated in dementia paralytica and confirmed pathologically by necropsy studies. Ebaugh *et al.*,[16] Ginzberg,[17] Hermann and Herrnheiser [18] have shown characteristic cerebral changes in dementia paralytica. In mental deficiency, organic change has been described in the form of a diminution in the number of cells in the third cortical layer and definite disturbances in the supra-granular layer. Reporting a series of 78 cases showing evidence of mental deficiency, Winkler [19] cites the most common findings in the encephalograms to be an increase in size, asymmetry and distortion of the ventricles. Brody and McAlenney [20] have shown in four cases of idiocy a dilatation of the ventricular system and an absence of air markings over the cortex.

The toxic psychoses present unquestionable evidence of the organic background productive of mental aberrations. Winkelman and Eckel [21] have described the cerebral changes occurring in severe infections and toxemias, including such conditions as typhoid fever, acute rheumatic fever, toxemia of pregnancy, erysipelas, Hodgkin's disease, chronic tuberculosis and an undetermined toxic condition. The clinical picture in their cases was usually that of an acute or subacute psychosis. The outstanding pathologic change occurred in the small cortical vessels, the lining cells of which presented swelling and proliferation, resulting in a cutting off of the blood supply, thereby producing the secondary microscopic picture of cloudy swelling in the ganglion cells and small areas of partial or complete cortical softening.

In a certain percentage of individuals who have had measles, the commonest mental residuum is a reduction in intelligence. Ford [22] has observed that during convalescence from measles, transient mental disturbances frequently occur and that prolonged toxic psychoses may eventuate. A change in personality, emotional lability, irritability, destructiveness and asocial behavior may also appear subsequent to an attack of measles. Ferraro and Scheffer [23] in discussing the cerebral pathology found in "measles encephalitis" conclude that there is a diffuse process of acute swelling and marked involvement of nerve cells which can be observed throughout the cortex and central structures. The lesions are analogous to those that can be produced by the use of an exogenous chemical agent such as lead, and this identity lends support to the contention that "measles encephalitis" is a toxic condition rather than an infectious one. The neurologic and mental disturbances occurring in lead encephalopathy may be quite severe as shown in the case reported by McKhann.[24] Encephalograms of his patient reveal a marked asymmetric internal hydrocephalus and extensive cortical atrophy. This encephalographic observation correlates the evidence of the destructive cerebral process described histologically by Ferraro and Scheffer.[23] The toxic encephalopathies of whatever origin ultimately produce destructive changes which cause cortical retractions that may be visualized encephalographically.

If in the psychoses supposedly of functional origin encephalographic findings can be demonstrated that are analogous to those

in the psychoses with an organic basis or where definite cerebral changes are manifest, then it is plausible to conclude that an organic change exists in these psychoses.

The present analysis is based on the encephalographic observations on the following groups of cases:

	No. of patients.	Encephalograms
1. Dementia paralytica	11	11
2. Mental deficiency	6	6
3. Alcoholic psychosis	3	3
4. Organic brain psychosis	2	2
5. Arterio-sclerotic psychosis	1	1
6. Constitutional psychopathic inferior with psychosis	1	1
7. Post-encephalitic psychosis	5	5
8. Epilepsy with psychosis	7	7
9. Schizophrenia	71	77
a. Hebephrenic 31		
b. Catatonic 20		
c. Paranoid 12		
d. Simple 8		
10. Manic-depressive psychosis	44	46
Total	151	159

The encephalographic technique and preparation of the patient is the same as alluded to in our previous work.[25-26]

I. Dementia Paralytica.

Only a few decades ago, dementia paralytica was considered a functional psychosis. Those who maintained that an organic structural change existed in the brains of paretics were roundly criticized and abused. Today, the histologic picture of dementia paralytica is definitely established as characteristic. The pathology can be seen and interpreted by means of the encephalogram as shown by the work of Ginzberg,[17] Ebaugh *et al.*,[16] Hermann and Herrnheiser,[18] and Guttmann and Kirschbaum.[27] Moreover, the extent of the pathology and the prognosis may be determined by such encephalograms.

The 11 patients in this series consisted of seven men and four women ranging in age from 33 to 55 years. The duration of the psychosis in five patients was approximately one year, in two

patients two years, in one patient 18 years, in two patients 12 years and in one patient 15 years.

The recumbent pressure in terms of millimeters of mercury varied from 4 mm. Hg. to 10 mm. Hg. in these patients. The upright pressure varied from 14 mm. Hg. to 36 mm. Hg. The quantity of cerebro-spinal fluid drained varied from 125 to 260 cc. The majority of these patients drained far in excess of 150 cc. of cerebro-spinal fluid. The amount of air injected varied from 120 to 240 cc.

Figs. 1 and 2 (Case 119) illustrate the typical encephalographic appearance of a case of dementia paralytica. The cerebral sulci are greatly enlarged, indicating a cortical atrophy beneath, and the outline of the air channels has a "moth-eaten" appearance. This ragged appearance corresponds to the disrupted, atrophic gyri found at necropsy. The ventricular system is considerably dilated. Case 120 shows in addition to the above a large area of absent air markings indicating the presence of arachnoidal adhesions or the variously termed "arachnoiditis,"[7] or "arachnitis."[28] Fig. 3 indicates the extensive internal hydrocephalus which may occur in a case of idiocy with dementia paralytica. Case 123 shows the same.

The patients presenting the greatest amount of deterioration usually drain excessive quantities of cerebro-spinal fluid and reflect this evidence of cerebral atrophy in the encephalograms. As a rule these patients withstand encephalography exceedingly well. They tolerate the procedure with considerable equanimity and are up and about on the following day. One patient in this series who was markedly deteriorated and who had had convulsive seizures at frequent intervals before encephalography, developed status epilepticus several days following the procedure and died one week later.

The general encephalographic findings in this group consisted of (1) Dilatation of the ventricular system with and without asymmetry, (2) Ragged, dilated sulci, (3) Arachnoidal adhesions as shown by absent air markings, (4) Enlarged cisterns. Absent air markings over the cortex does not always indicate the presence of arachnoidal adhesions. A reactive edema during the course of the procedure may prevent the proper interchange of cerebro-spinal fluid and air. Obstruction at the base laterally and in the

midline may prevent air from going into the cortical sulci. Again, alterations in the viscosity of the cerebro-spinal fluid over the cortex may be a factor in producing the ground-glass appearance in the encephalogram.

CASE 119.—I. G. (Fig. 1.) Dementia paralytica. Age 33, female, married, duration of psychosis 12 years, no remissions, no hallucinations, presents a marked euphoria, serologic studies present a positive colloidal gold and cerebro-spinal fluid Wassermann. Shows considerable deterioration, has been treated with anti-luetics and malaria. Family history: uncle and cousin psychotic.

Recumbent pressure 10 mm. Hg., upright pressure 22 mm. Hg., cerebro-spinal fluid drained 170 cc., air injected 160 cc., cerebro-spinal fluid incompletely drained because of poor cooperation.

There is a "moth-eaten" appearance of the cortex throughout. Note the very widely and irregularly dilated cortical sulci over the frontal, parietal and occipital regions. The ventricular system is enlarged. No air can be perceived in the cisterna pontis or the cisterna chiasmatis. Some air can be seen in the cisterna interpeduncularis.

(Fig. 2.) Postero-anterior view. There is a considerable increase of air in the longitudinal fissure. The falx cerebri is very clearly delineated. There is marked irregular cortical atrophy over both hemispheres. The lateral ventricles and third ventricles are considerably dilated.

CASE 120.—L. D. Dementia paralytica. Age 55, female, married, duration of psychosis eight years, no remissions, is markedly euphoric, serology reveals a positive colloidal gold curve and positive cerebro-spinal fluid Wassermann. There is a degree of mental deterioration, patient has been receiving anti-luetic treatment. Family history negative.

Recumbent pressure 10 mm. Hg., upright pressure 30 mm. Hg., cerebro-spinal fluid drained 175 cc., air injected 155 cc.

There are large areas of absent air markings over the vertex and over the parietal region, indicating probable arachnoidal adhesions. The sulcus cinguli ventrally is markedly dilated and there are dilated channels in the parietal area. The occipito-parietal sulcus is considerably enlarged. The sulcus rostralis is dilated. The ventricular system is markedly enlarged. The cerebellar folia are very prominent and reveal evidence of atrophy. The cisterna ambiens is prominent. The cisternæ chiasmatis and interpeduncularis are slightly increased in size.

CASE 123.—B. P. (Fig. 3.) Mental defective with dementia paralytica. Age 41, male, single, duration of psychosis 15 years, no remissions, is considerably expansive, serology positive for colloidal gold and cerebro-spinal fluid Wassermann. Family history—grandfather psychotic, considerable mental deterioration.

Recumbent pressure 6 mm. Hg., upright pressure 18 mm. Hg., cerebro-spinal fluid drained 240 cc., air injected 215 cc., cerebro-spinal fluid incom-

pletely drained. There is an absence of air markings over the cortex, except for the dilated sulcus cinguli ventrally. The lateral ventricles are considerably dilated and asymmetrical, the left ventricle being much larger than the right and irregular in contour. The third and fourth ventricles are also enlarged. The cerebellum is clearly outlined and indicates a moderate degree of atrophy. The cisternæ pontis and interpeduncularis are poorly visualized. There appears to be evidence of arachnoidal adhesions at the base. There is a button in the left nares which has become encysted.

The antero-posterior view shows an absence of air markings over both hemispheres. The lateral ventricles are considerably dilated and asymmetrical. The left lateral ventricle is considerably ballooned out. The island of Reil areas are quite prominent on each side, particularly on the left. An encysted button can be seen in the left nares.

II. Mental Deficiency.

This group consists of six males, five white and one colored, ranging in age from 23 to 42 years. Three patients in this group were brothers, all showing an achondroplasia and two having a left scoliosis. There is a history of mental disease in four siblings of these three brothers. The mother and paternal grandmother were psychotics. The mental defectiveness in this group consisted of congenital idiocy and imbecility.

The recumbent cerebro-spinal fluid pressure ranged from 6 to 28 mm. Hg. and the upright pressure ranged from 14 to 30 mm. Hg. The cerebro-spinal fluid drained ranged from 60 to 155 cc. and the amount of air injected ranged from 55 to 145 cc.

Fig. 4 shows a tendency to microgyria with mildly dilated sulci. The roof of the ventricles show projections not unlike the "candle gutterings" seen in tuberose sclerosis. The encephalogram of the youngest (Case 135) of the three brothers described above shows a moderate degree of enlargement in the cortical sulci and the ventricular system is slightly enlarged. The encephalograms of the two older brothers showed a more advanced atrophy, areas of absent air markings, and the ventricles were somewhat larger. The encephalograms in the other cases indicated microgyria, cortical atrophy, asymmetry of the lateral ventricles, moderate enlargement of the ventricular system and basal cisterna, and areas of absent air markings over the cortex.

Case 132.—A. R. (Fig. 4.) Mental deficiency with psychosis. Age 28, male, single, has been hospitalized for 18 years, no hallucinations or delusions, presents many mannerisms, family history negative, there is considerable

mental deterioration, is extremely dull and childish and requires constant supervision.

Recumbent pressure 6 mm. Hg., upright pressure 20 mm. Hg., cerebro-spinal fluid drained 105 cc., air injected 105 cc., cerebro-spinal fluid system incompletely drained.

There is an absence of air markings over the frontal area and over the vertex. The cerebral gyri appear to be rather small, resembling microgyria. There appear to be three or four projections from the roof of the ventricle, not unlike that seen in tuberose sclerosis. There appears to be a small mass in the cisterna pontis. The ventricles are approximately normal in size. The cisternæ chiasmatis, interpeduncularis and pontis are of normal size. The cisterna ambiens is clearly outlined. The cisterna magna is quite large and prominent.

In the antero-posterior view the cortical sulci visualized, appear slightly dilated. The sulci cinguli can be seen on each side. The lateral ventricles are asymmetrical, the right being slightly larger than the left. There are areas of absent air markings over the cortex.

Case 135.—S. G. Mental deficiency with psychosis. Age 26, male, single, has been hospitalized for the past four years, has delusions of persecution, and many mannerisms. Family history: there is a history of insanity in four siblings, and in the paternal grandmother, the mother also presents psychotic manifestations. This patient is one of three brothers presenting a similar mental condition, two of these brothers show a scoliosis to the left with an achondroplastic picture, the third brother shows the achondroplasia but without the scoliosis.

Recumbent pressure 8 mm. Hg., upright pressure 24 mm. Hg., cerebro-spinal fluid drained 140 cc., air injected 125 cc.

There is a diffuse fronto-parieto-occipital lobe atrophy as manifested by the dilated cortical sulci with a few areas of absent air markings. The cisterna corporis callosi is visualized in this view. The basal cisternæ and the cisterna ambiens are enlarged. The ventricular system also is slightly enlarged. The posterior cerebral artery can be readily seen as well as the anterior communicating artery. The lamina quadrigemina and the pineal gland are clearly outlined. The superior medullary velum can also be seen in this projection.

The antero-posterior view shows considerable atrophy as manifested by the dilated sulci. The cisterna corporis callosi is clearly outlined. The lateral ventricles are increased in size and are symmetrical. The island of Reil areas can be clearly seen bilaterally.

III. Alcoholic Psychoses.

The histopathology found in the brains of persons having one of the alcoholic psychoses, falls under the broad classification of a degenerative type of lesion secondary to toxemia. Such changes

should be distinguishable by encephalography if the degenerative process has been sufficient to produce noticeable cortical damage.

This group comprises three males, ages 37, 48, and 55 years respectively. The duration of the psychosis in all three is of comparatively recent origin, the most recent being one year and the longest being three and one-half years. The recumbent cerebro-spinal fluid pressures ranged from 6 to 10 mm. Hg. The upright pressures ranged from 20 to 26 mm. Hg. The quantity of cerebro-spinal fluid drained ranged from 95 to 160 cc. The quantity of air injected ranged from 85 to 145 cc.

Fig. 5 illustrates the encephalographic appearance that obtains to a large degree in all three cases. The cortical sulci visualized are moderately dilated and there are areas of absent air markings. The ventricular system is slightly enlarged. The patients in this group had but a very slight post-encephalographic reaction.

CASE 138.—M. W. (Fig. 5.) Alcoholic psychosis. Age 55, male, single. Duration of psychosis 3½ years. Has been hospitalized for the past three years, marked hallucinations, has ideas of reference, there is a moderate degree of mental deterioration. Family history negative.

Recumbent pressure 6 mm. Hg., upright pressure 20 mm. Hg., cerebro-spinal fluid drained 130 cc., air injected 125 cc.

There is an absence of air markings over the greater portion of the cerebral hemispheres with exception of the extreme frontal area and an occasional dilated sulcus in the central and parietal region. The sulci in the extreme frontal tip are extremely dilated. The ventricular system is moderately enlarged. The cisterna ambiens is enlarged. The basilar artery can be seen traversing the cisterna pontis.

The antero-posterior view shows an absence of air markings over the greater portion of both hemispheres, with occasional dilated sulci. The cisterna corporis callosi can be seen. The lateral ventricles are slightly increased in size but symmetrical. The third ventricle appears to be increased in size.

IV. ORGANIC BRAIN PSYCHOSES.

This group consists of one male and one female aged 33 and 43 years respectively. The former is a case of cerebral diplegia with psychosis and the latter one in which a psychosis followed meningitis.

The recumbent cerebro-spinal fluid pressures were 14 and 11 mm. Hg. respectively. The upright pressures were 30 and 16 mm. Hg. respectively. 145 cc. of cerebro-spinal fluid were drained in

Case 151 and 130 cc. of air injected. 90 cc. of cerebro-spinal fluid were drained in Case 154, complete drainage being impossible because of lack of cooperation of the patient. 80 cc. of air were injected in this case.

Fig. 6 illustrates the changes occurring subsequent to a meningitic process. There is an absence of air markings over the greater portion of the cortex and those few channels visible are definitely enlarged. The ventricles are asymmetrical, one being incompletely drained. The encephalographic findings in Case 154 show rather extensive cortical atrophy and moderate enlargement of the ventricular system.

Case 154.—E. F. (Fig. 6.) Organic brain psychosis. Age 43, female, single. Duration of psychosis three years, has been hospitalized for the past two years. This patient had had a meningitis prior to the onset of her psychotic manifestations. Family history negative.

Recumbent pressure 10 mm. Hg., upright pressure 16 mm. Hg., cerebro-spinal fluid drained 90 cc., air injected 80 cc., cerebro-spinal fluid system incompletely drained.

There are very few air markings visible over the cortex and those outlined are moderately increased in caliber. The left ventricle is only partially filled. The right ventricle is slightly increased in size. The basal cisternæ are within normal limits.

The postero-anterior view shows an absence of air markings over the greater part of both hemispheres. The sulcus cinguli on the left is enlarged. The island of Reil areas can be visualized bilaterally, the left being larger than the right. The lateral ventricles are asymmetrical, the left being partially filled and the right being larger than the left. The third ventricle is slightly increased in size.

V. Psychosis with Arteriosclerosis.

In most classifications of the psychoses the arteriosclerotic psychosis is a separate group. In reality it is an organic brain psychosis. The histopathology in this condition is readily recognized and accepted as an entity.

This patient was a 52-year-old white male, presenting a psychosis for the past 10 years. He showed a generalized arteriosclerosis. The recumbent cerebro-spinal fluid pressure was 4 mm. Hg. and the upright pressure was 24 mm. Hg. 115 cc. of cerebro-spinal fluid were drained and 110 cc. of air injected.

Fig. 7 shows considerable cortical atrophy as manifested by the markedly dilated sulci. There are areas of absent air markings.

The insulæ of Reil are very prominent on each side. The atrophic changes seen in the illustration can be explained on the basis of the cortical pathology induced by vascular disease.

CASE 145.—J. McL. (Fig. 7.) Arteriosclerotic psychosis. Age 52, male, married. Duration of psychosis 10 years. Has been hospitalized for the last two years. Family history: maternal uncle psychotic, one sibling psychotic.

Recumbent pressure 4 mm. Hg., upright pressure 24 mm. Hg., cerebro-spinal fluid drained 115 cc., air injected 110 cc.

There are areas of absent air markings but the cortical sulci shown are greatly increased in caliber, particularly those over the frontal and parietal area. The lateral ventricles are slightly irregular in outline. The cisterna ambiens is very clearly seen. The basal cisternæ are within normal limits. The cisterna corporis callosi can be visualized.

The antero-posterior view shows an absence of air over the left hemisphere. The cortical sulci shown in the right hemisphere are markedly dilated. There is an increase of air in the longitudinal fissure. The sulci cinguli can be clearly seen and the cisterna corporis callosi can be visualized. The island of Reil areas are prominent bilaterally.

VI. CONSTITUTIONAL PSYCHOPATHIC INFERIOR WITH PSYCHOSIS.

This patient was a 17-year-old white female, presenting a psychotic condition for the past seven months superimposed on a constitutional psychopathic inferior personality.

The recumbent cerebro-spinal fluid pressure was 10 mm. Hg. and the upright pressure 28 mm. Hg. 165 cc. of cerebro-spinal fluid were drained and 155 cc. of air injected. The encephalogram showed a diffuse cortical atrophy involving the fronto-parieto-occipital areas and a moderate enlargement of the ventricular system and cisterns. The lateral ventricles in addition to being enlarged were asymmetrical.

VII. POST-ENCEPHALITIC PSYCHOSIS.

This group of five patients was composed of two women and three men, ranging in age from 25 to 33 years. The duration of the psychosis varied from 1½ to 14 years. All showed evidence of Parkinsonism. The family history in each instance was negative.

The recumbent cerebro-spinal fluid pressures ranged from 6 to 18 mm. Hg. and the upright pressures from 26 to 30 mm. Hg. The quantity of cerebro-spinal fluid drained ranged from 115 to 160 cc. and the quantity of air injected ranged from 105 to 150 cc.

Case 141 showed a moderately advanced degree of cortical atrophy. Fig. 8 shows definite cortical atrophy and several of the parietal sulci dilated to a greater degree than the sulci in the frontal area. This appearance simulates the encephalographic findings in many schizophrenic patients.

The encephalograms in this group all showed varying degrees of cortical atrophy, three with a predilection to the parietal lobe. In addition, there was enlargement of the ventricular system and moderate changes in the basal cisterns. Several showed areas of absent air markings over the cortex and insulæ of Reil enlargement.

The atrophic cortical changes demonstrated in the preceding cases may be explained by the cortical pathology occurring as a result of encephalitis lethargica. D'Atona and Vegni,[29] Hallervorden and Spatz,[30] Raskin,[31] Von Economo,[32] Carmichael,[33] Hassin and Rotman,[34] and Riley [35] maintain that a widespread cerebral involvement occurs as a result of encephalitis lethargica and are unwilling to attribute the post-encephalitic manifestations to a destruction of the substantia nigra or the globus pallidus alone. Buzzard [36] and Watson [37] report cases of encephalitis lethargica in which the cerebral cortex was involved chiefly.

The encephalographic pattern in three of the post-encephalitic psychoses herein reported resembled the encephalographic findings in schizophrenia. It is not uncommon to observe in post-encephalitis a retardation of psycho-motor activity to such a degree as to assume the proportions of a catatonia with "waxy flexibility." The aberration of psychic function may be characterized by a withdrawal from reality, dream states, hallucinatory episodes and perverted activities resembling, to a remarkable degree, schizophrenia. Manic-depressive colorings, behavior disturbances of varying intensity and bizarre psychotic phenomena occur as the result of encephalitis lethargica and have been reported in such abundance that a vast literature on the subject has arisen; the various types of reactions have been described by Strecker and Marsh,[38] Barker,[39] Happ and Blackfan,[40] Collin and Reguin,[41] Riley,[35] Leahy and Sanda,[42] Anderson,[43] Boyd,[44] and Kirby and Davis.[45] The disturbed cortical architecture as shown in these encephalograms indicates an organic basis for the post-encephalitic psychosis.

CASE 141.—E. D. Post-encephalitic psychosis. Age 28, female, single. Duration of psychosis 14 years. Has been hospitalized for the past 12 years. No remissions, no hallucinations or delusions. Family history negative. Presents the typical post-encephalitic Parkinson's disease and psychotic manifestations.

Recumbent pressure 18 mm. Hg., upright pressure 30 mm. Hg., cerebro-spinal fluid drained 115 cc., air injected 105 cc.

There are areas of absent air markings. The cortical sulci shown are distinctly dilated and irregular in outline. The ventricular system is normal in size. The basal cisternæ are approximately normal in size. The calcarine fissure is clearly delineated.

The postero-anterior view shows an increase of air in the longitudinal fissure. The cisterna corporis callosi is clearly outlined. The sulci callosi and cinguli are enlarged. The cortical sulci shown are distinctly dilated. The lateral ventricles are symmetrical and appear to be top normal in size. The cisterna fossae sylvii can be seen.

CASE 147.—J. A. K. (Fig. 8.) Post-encephalitic psychosis. Age 33, male, married. Duration of psychosis seven years. Has been hospitalized for the past five years. Family history negative. Presents a hemi-Parkinsonian picture and psychotic manifestations. There is a slight degree of mental deterioration.

Recumbent pressure 6 mm. Hg., upright pressure 26 mm. Hg., cerebro-spinal fluid drained 135 cc., air injected 125 cc.

The cortical sulci over the frontal, parietal and occipital regions show considerable enlargement, indicating a moderately advanced degree of cortical atrophy. There are several rather large channels in the parietal and pre-occipital region. The ventricular system is top normal in size. The basal cisternæ and cisterna ambiens are slightly enlarged.

VIII. EPILEPSY WITH PSYCHOSIS.

This group consisted of seven patients, two women and five men varying in age from 18 to 47 years. The duration of the convulsive state varied from 1 to 30 years. In two cases there was a history of mental deficiency and epilepsy in collateral members of the family. One patient gave a history of cerebral trauma at seven years of age.

The recumbent cerebro-spinal fluid pressures ranged from 6 to 16 mm. Hg. and the upright pressures ranged from 22 to 32 mm. Hg. The quantity of cerebro-spinal fluid drained ranged from 85 to 180 cc. and the quantity of air injected ranged from 80 to 150 cc.

Case 127 shows a diffuse, rather uniformly distributed cortical atrophy as has been described by Fay,[46] Pendergrass,[47] Grant,[28]

Notkin,[48] and Friedman *et al.*[49] in cases of epilepsy. The atrophy is quite distinct and in addition the ventricular system and basal cisterna are enlarged.

Fig. 9 and Case 128 show a more extensive cerebral involvement in the degree of cortical atrophy, patchy areas of absent air markings, prominent cerebellar folia and slight enlargement of the ventricles and cisterna. The insulæ of Reil are quite prominent on each side.

The encephalograms in this group revealed cortical atrophy, areas of absent air markings, symmetrically and asymmetrically dilated ventricles, enlarged cisterns, cerebellar atrophy and insulæ of Reil atrophy. The findings are not dissimilar from those in which an organic brain disturbance can be demonstrated.

CASE 127.—F. E. K. Epilepsy with psychosis. Age 32, male, single. Has had convulsive seizures for 32 years. Hospitalized for eleven years. No remissions. Has hallucinations and ideas of reference. There is some degree of deterioration. Family history: one sister was a mental defective.

Recumbent pressure 10 mm. Hg., upright pressure 32 mm. Hg., cerebrospinal fluid drained 180 cc., air injected 150 cc.

There appears to be a uniformly distributed cortical atrophy including the frontal, parietal and occipital lobes, with patchy areas of absent air markings. The lateral ventricles, third ventricle and fourth ventricle are increased in size. The cisternæ interpeduncularis and pontis are also slightly increased in size. The cisterna ambiens is clearly visualized.

CASE 128.—J. F. R. (Fig. 9.) Epilepsy with psychosis. Age 45, male, single. Has had convulsive seizures for 38 years, following a head injury at the age of seven. Has been hospitalized for the past six years. No remissions. Has hallucinations at times. There is some degree of mental deterioration. Family history negative.

Recumbent pressure 6 mm. Hg., upright pressure 32 mm. Hg., cerebrospinal fluid drained 135 cc., air injected 130 cc.

There is definite evidence of cortical atrophy involving the frontal and a portion of the parietal lobe. There is an absence of air markings over the vertex and in the post-parietal and occipital regions. The cerebellar folia are very clearly outlined. The ventricles are top normal in size. The cisterna ambiens is slightly enlarged. The cisternæ pontis and interpeduncularis are about top normal in size.

The postero-anterior view shows an absence of air markings directly over the vertex indicating arachnoidal adhesions. The cortical sulci shown are distinctly dilated. The lateral ventricles are top normal in size and asymmetrical, the left being larger than the right.

IX. Schizophrenia.

This group consisted of 71 patients on whom 77 encephalographic studies were made. There were 56 females and 15 males, ranging from 16 to 52 years of age. The duration of psychosis varied from 6 months to 18 years. Sixty of these cases have been previously reported by us.[25]

The cerebro-spinal fluid pressures were as follows:

A. Recumbent position:	
1. Below 10 mm. Hg	21
2. 10 mm. Hg. or above	50
3. 20 mm. Hg. or above	5
B. Upright position:	
1. Below 20 mm. Hg	4
2. 20 mm. Hg. or above	67
3. 30 mm. Hg. or above	41
4. 38 mm. Hg. or above	4

The quantities of cerebro-spinal fluid drained were as follows:

A. Less than 100 cc	8
B. 125 cc. of cerebro-spinal fluid or more	49
C. 150 cc. of cerebro-spinal fluid or more	22
D. 200 cc. of cerebro-spinal fluid or more	5
E. 235 cc. of cerebro-spinal fluid or more	1

The quantity of air injected ranged from 75 to 215 cc.

Fig. 10 shows the type of cortical atrophy occurring in the majority of cases of schizophrenia. The atrophy extends over the fronto-parieto-occipital regions with the atrophy being more intense in the parietal lobe. Fig. 11 is an encephalogram of the same patient illustrated in Fig. 10, taken three and one-half years after the first films were taken. During the interval this patient became dull, stupid, obese and has deteriorated considerably. The cortical sulci have become larger in caliber particularly those in the parietal region. The ventricles and cisterns have also increased in size as compared with the previous encephalogram. There are occasional areas of absent air markings. The antero-posterior projections showed an enlargement in the insula of Reil areas. Fig. 12 again reveals the character of the distribution of cortical atrophy with a predilection to the parietal lobe. Fig. 13 shows marked cortical atrophy throughout and that the parietal area has borne

the brunt of the pathologic change. The antero-posterior projections show considerable atrophy of the insulæ of Reil.

The majority of these cases have a moderately increased cerebro-spinal fluid pressure as shown by the table. That a possible relationship may exist between the occurrence of cortical atrophy and a chronic increased intra-cranial pressure has been indicated by Winkelman and Fay,[50] and by Dixon and Ebaugh.[9]

Complete drainage of the cerebro-spinal fluid system was carried out in all cooperating patients, in order to ascertain the volumetric degree of cerebral atrophy. From the table it will be seen that more than the normal quantity of cerebro-spinal fluid was removed in 49 patients. Those in whom less than the normal quantity of fluid was removed showed atrophic changes in the encephalogram nevertheless; the lessened amount of cerebro-spinal fluid drained, in all probability being due to trapped fluid in the sulci and ventricles. Six patients had the encephalographic procedure re-performed at from one year and eleven months to three and one-half years after the original encephalography. One patient showed no change in her psychosis and the encephalogram two years and three months later showed very little change in the cortical pattern, the atrophy being intense and extensive with parietal lobe atrophy predominating. In one patient where the earlier encephalogram showed an absence of filling of the ventricles, the later encephalogram revealed the ventricles completely filled.

Five patients deteriorated in characteristic præcox fashion during the interval between encephalography. The second set of encephalograms in these patients show an increased pathology in the form of a further enlargement of the ventricular system and cisterns and in some cases increased cortical atrophy. In two cases there was extensive absence of air markings over the cortex and these films showed increased dilatation of the ventricular system. Jacobi [51] repeated the encephalographic procedure in four cases of schizophrenia at intervals of four months to two years and noted an absence of cortical air markings as compared with normal air markings in the original encephalogram. Our films reveal but two instances in which the cortical air markings have been obliterated in subsequent encephalograms and then only partially. In none were the cortical sulci normal in caliber. Schube [52] in reporting four patients with abnormal mental states associated with diabetes in-

sipidus, shows an encephalogram of a patient diagnosed schizophrenia, in which the cortical atrophy involves mainly the parietal lobe.

The post-encephalographic reaction was most severe in the group of schizophrenics. The headache persisted longer and the vasomotor phenomena were more drawn out in this group. No alarming symptoms occurred, however. It is interesting to observe that seven patients in a state of catatonia showed considerable improvement following encephalography. Two hebephrenics and one case of simple dementia præcox improved after encephalography.

CASE 5.—J. LeD. (Fig. 10.) Schizophrenia (Hebephrenic). Age 22, female, single. Duration of psychosis three years. No remissions. Moderate degree of deterioration. Family history essentially negative.

Encephalogram performed 11/22/30 under ether anæsthesia. Recumbent pressure 26 mm. Hg., upright pressure 36 mm. Hg., cerebro-spinal fluid drained 130 cc., air injected 125 cc.

The cortical sulci are not all visualized but those shown are definitely dilated, particularly those in the parietal area. The ventricular system apparently is normal in size and shape. The basal cisternæ are essentially normal in size, with the exception of the cisterna interpeduncularis, which is slightly enlarged. The cerebellar folia are well visualized.

CASE 111.—J. LeD. (Fig. 11.) Same as Case 5. Encephalogram reperformed 5/12/33. Following the previous encephalogram this patient put on considerable weight, she became rather dull and stupid and within the past year has been deteriorating in the characteristic præcox manner.

Recumbent pressure 8 mm. Hg., upright pressure 34 mm. Hg., cerebro-spinal fluid drained 135 cc., air injected 125 cc.

Note that the cortical air markings in the parietal lobe have become considerably enlarged as compared with the previous encephalogram. The frontal sulci shown have also increased in caliber. There are, however, considerable areas of absent air markings indicating arachnoidal adhesions or change in the consistency of the cerebro-spinal fluid. The ventricular system is somewhat larger than previously. The basal cisternæ have also increased in size.

CASE 15.—C. H. (Fig. 12.) Schizophrenia (Hebephrenic). Age 24, female, single. Duration of psychosis 4½ years, no remissions, auditory hallucinations, delusions of grandiosity, moderate degree of deterioration. Family history negative.

Recumbent pressure 14 mm. Hg., upright pressure 38 mm. Hg., cerebro-spinal fluid drained 135 cc., air injected 125 cc.

There is a moderately advanced fronto-parietal lobe atrophy with the parietal lobe manifesting a greater degree of atrophic change. There is

evidence of atrophy in the cuneate lobe. The sulcus rostralis is dilated. The ventricular system is top normal in size. The cisterna ambiens is slightly enlarged.

CASE 41.—E. S. (Fig. 13.) Schizophrenia (Paranoid). Age 27, female, single. Duration of psychosis 2½ years. No remissions. Auditory hallucinations, delusions of persecution, mild degree of deterioration. Family history —maternal cousin insane.

Recumbent pressure 8 mm. Hg., upright pressure 16 mm. Hg., cerebro-spinal fluid drained 135 cc., air injected 130 cc.

Note the fronto-parietal lobe atrophy with the tremendously dilated sulci of the parietal area. There are some areas of absent air markings, indicating arachnoidal adhesions. The cisterna ambiens is enlarged. The cerebellar folia are quite prominent and the cisterna magna is quite prominent. The cisternæ chiasmatis, interpeduncularis and pontis are normal in size.

X. MANIC-DEPRESSIVE PSYCHOSIS.

There were 44 patients in this group, 39 of whom were females and 5 were males. The ages ranged from 21 to 54 years. The duration of the psychosis varied from 7 months to 20 years. A report of 38 cases of this group is now in publication.[20]

The cerebro-spinal fluid pressures were as follows:

A. Recumbent position:	
1. Below 10. mm. Hg	14
2. 10 mm. Hg. or above	30
B. Upright position:	
1. Below 20 mm. Hg	0
2. 20 mm. Hg. or above	44
3. 30 mm. Hg. or above	29
4. 38 mm. Hg. or above	4

The quantities of cerebro-spinal fluid were as follows:

A. Less than 100 cc	0
B. 125 cc. of cerebro-spinal fluid or more	41
C. 150 cc. of cerebro-spinal fluid or more	14
D. 200 cc. of cerebro-spinal fluid or more	4
E. 220 cc. of cerebro-spinal fluid or more	1

The quantity of air injected varied from 50 to 215 cc.

Fig. 14 illustrates the disturbance in the cortical architecture that is seen in many of the encephalograms of manic-depressive patients. There is evidence of cortical atrophy, enlargement of the ventricles and cisterns and areas of absent air markings. Fig. 15 shows the so-called "ground-glass" appearance of the cortex

where there is an absence of air markings. There are a few sulci discernible which are considerably dilated. The ventricular system and basal cisterns are definitely enlarged. The antero-posterior view also reveals an absence of air over the cortex and symmetrically dilated ventricles. The insulæ of Reil are very prominent on each side. Fig. 16 indicates the extensive character of cortical damage that may occur in some of these cases.

The encephalograms in this group showed no consistent picture that would characterize manic-depressive psychosis. The findings indicated the presence of either one or more pathologic disturbances of the cerebral architecture such as (1) cortical atrophy, diffuse or patchy in distribution, (2) complete absence of air markings over the cortex, (3) dilatation of the ventricular system, (4) asymmetry of the lateral ventricles, (5) enlargement of the cisterns, (6) cerebellar atrophy, and (7) enlargement of the insula of Reil area.

As shown by the figures in the chart, there is evidence of a chronic increased intracranial pressure in manic-depressive psychosis. Coincident with this increase in pressure, atrophic changes occur as indicated by the quantity of cerebro-spinal fluid drained.

Two patients of this group had the encephalographic procedure re-performed. In both instances the cortical patterns showed a slight increase in atrophic change. The reaction to encephalography by the patients in this group was better than the schizophrenics but not as good as the patients having dementia paralytica. The greatest number of individuals improved subsequent to encephalography occurred in this group. Twenty-two patients improved, ten to such a degree as to permit parole.

Case 86.—E. R. K. (Fig. 14.) Manic-depressive psychosis. Age 41, female, widowed. Duration of psychosis nine and one-half years, reaction is maniacal, has had two remissions. Family history negative. Following the encephalography the patient went into a spontaneous remission and is at home and adjusted.

Recumbent pressure 4 mm. Hg., upright pressure 26 mm. Hg., cerebro-spinal fluid drained 145 cc., air injected 135 cc.

The ventricular system is very slightly increased in size. The cortical sulci in the pre-motor area are moderately dilated and the post-Rolandic fissure is considerably dilated. There is an area of absent air markings over the motor area and in the post-parietal cortex. The cisternæ chiasmatis and pontis are somewhat enlarged.

CASE 87.—E. K. A. (Fig. 15.) Manic-depressive psychosis. Age 46, female, single. Duration of psychosis four years. Is in a depressed phase. No remissions. Patient has been considerably more responsive since encephalography. Family history: mother presents a depressed state.

Recumbent pressure 10 mm. Hg., upright pressure 28 mm. Hg., cerebrospinal fluid drained 120 cc., air injected 105 cc.

Lateral ventricles are moderately enlarged. There is almost complete absence of air over the cortex. There is a small laked area in the sulcus parieto-occipitalis. The cisternæ interpeduncularis, chiasmatis are somewhat enlarged. The pons and medulla can be readily perceived. The ventral paired cisterna ambiens is clearly discernible. The anterior communicating artery is very clearly shown in this view. The lamina terminalis and the cisterna cinereæ laminæ terminalis can be clearly seen.

The antero-posterior view shows an absence of air markings over the cerebral hemispheres. The island of Reil areas are clearly visible on each side. The lateral ventricles are moderately enlarged but symmetrical.

CASE 100.—C. S. (Fig. 16.) Manic-depressive psychosis. Age 49, female, single. Duration of psychosis nine years. Is in a depressed phase. No remissions. Patient had typhoid fever at 19 years of age. Family history is negative. Has improved considerably since encephalography.

Recumbent pressure 8 mm. Hg., upright pressure 34 mm. Hg., cerebrospinal fluid drained 210 cc., air injected 195 cc.

The ventricular system is slightly increased in size. The extreme frontal pole shows an absence of air markings. The pre-motor and motor areas show markedly dilated sulci. The parietal and occipital lobes show extensive atrophy. There is an accumulation of extra-arachnoid air over the left vertex. The cisterna ambiens is considerably enlarged.

COMMENT.

The problem of establishing an organic basis for the so-called functional psychosis is of more than academic interest or importance. As in any branch of medicine the ultimate goal is correct treatment, which can be based only on a correct knowledge of the factors productive of disease. Among the various groups of psychoses here described, we have not been able to find encephalograms that would conform to the normal standard. The many deviations from the normal cerebral architecture revealed by the encephalograms we feel are due to structural, morphologic changes resulting from physio-chemical alterations produced by a host of conditions. A defective anlage reflecting a hereditary taint may exhibit the abnormal physio-chemical trend eventuating in disturbed morphology.



FIG. 1.

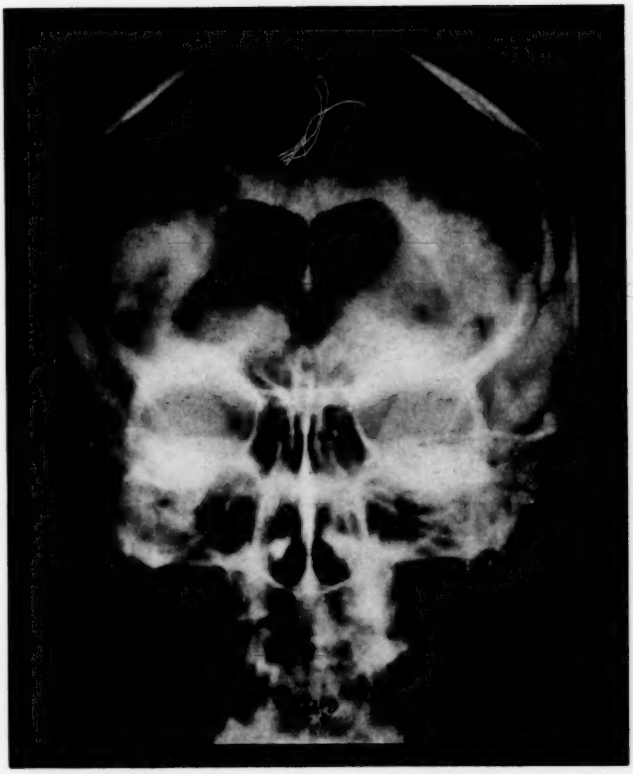


FIG. 2.

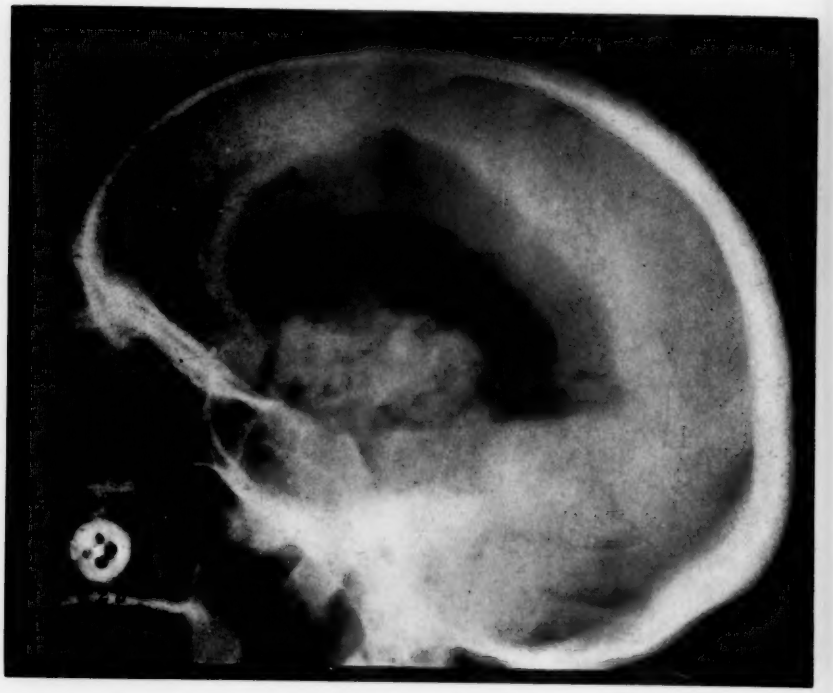


FIG. 3.



FIG. 4.



FIG. 5.



FIG. 6.



FIG. 7.



FIG. 8.

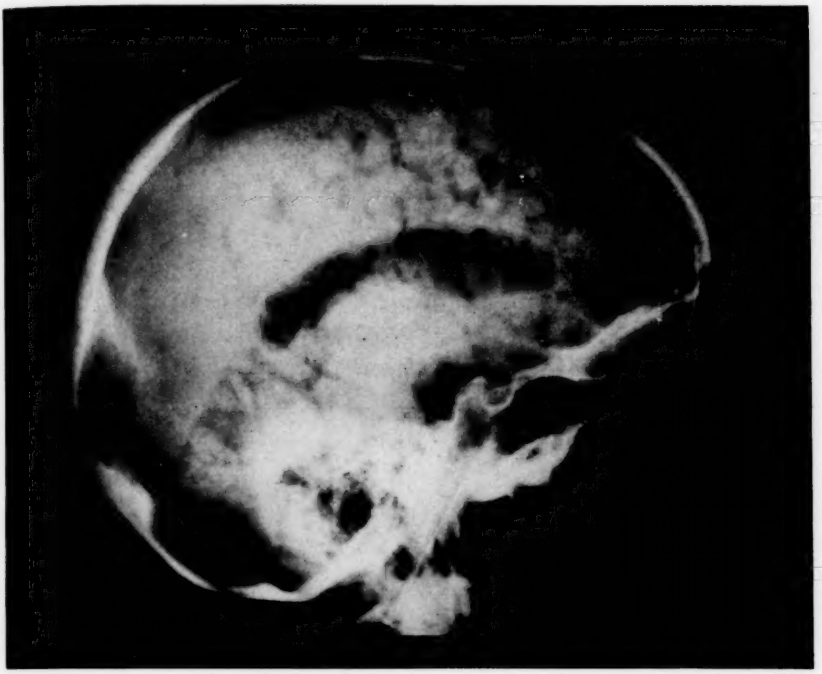


FIG. 9.

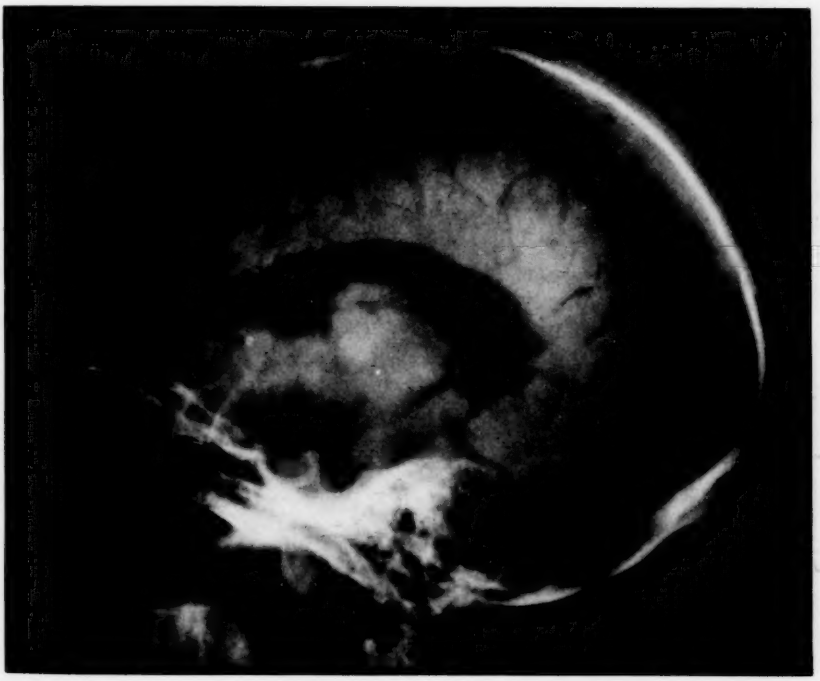


FIG. 10.

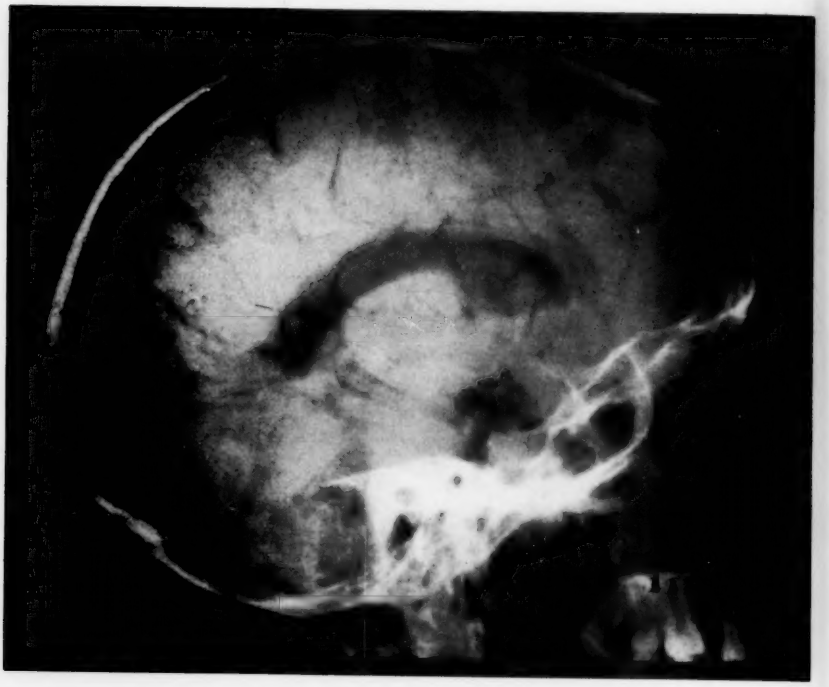


FIG. 11.



FIG. 12.

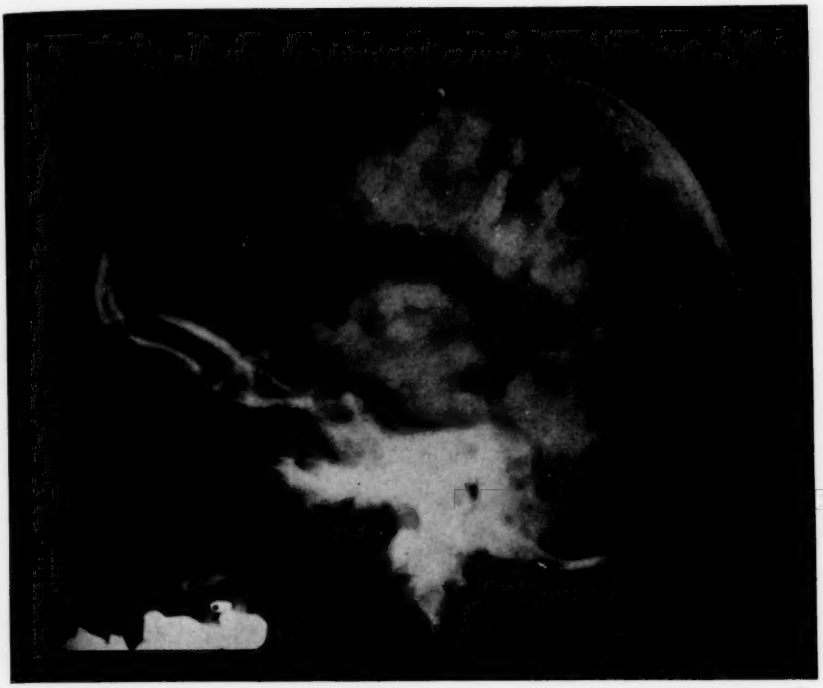


FIG. 13.

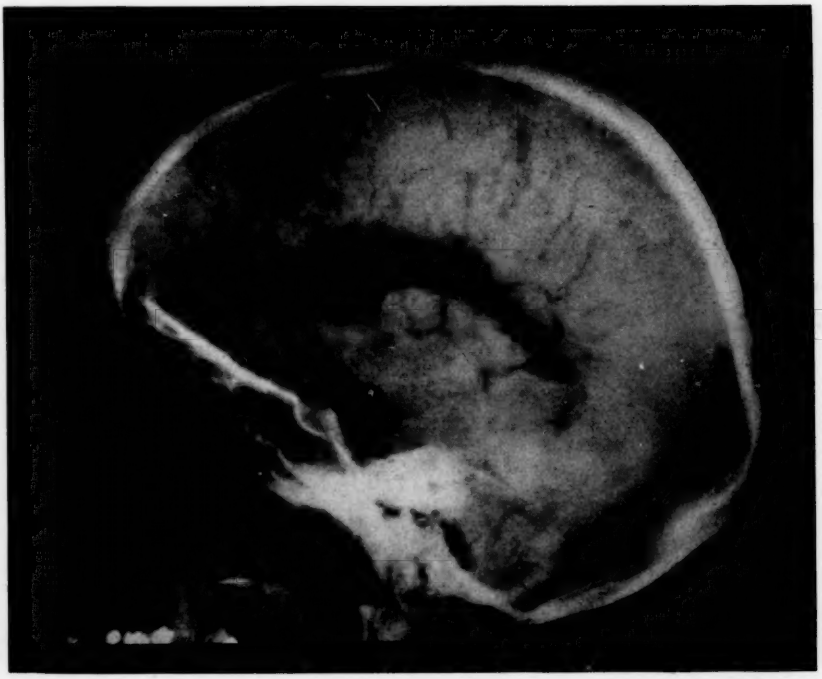


FIG. 14.



FIG. 15.

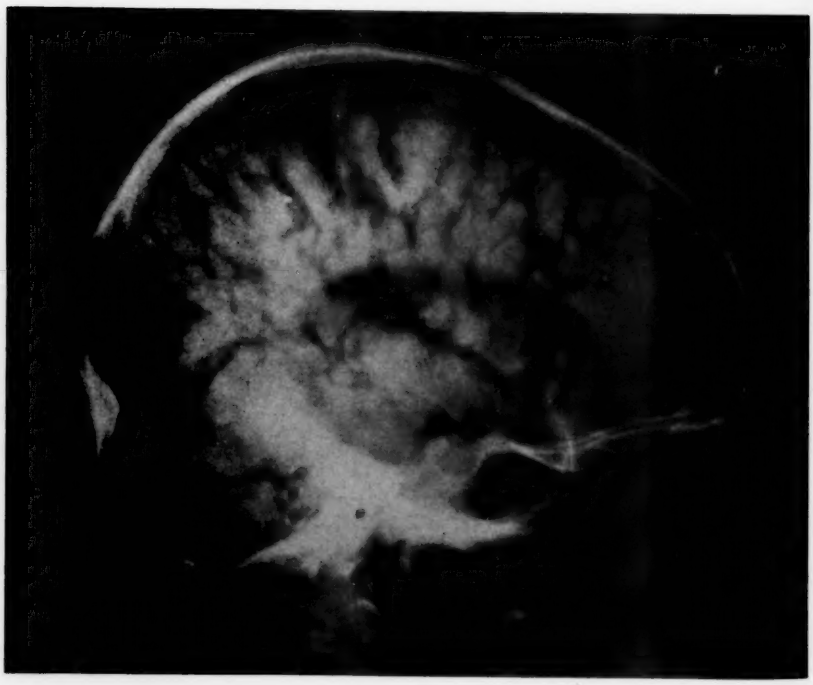


FIG. 16.

Winkelman [14] has traced the course of the histopathologic process occurring in the brain of an individual in whom the respirations had ceased for seven minutes and then had been revived. The patient never completely regained her mentality and died one week later. The brain showed a profound ischemic death of the ganglion cells. Smaller areas of ischemic cell change diffusely distributed occur following severe toxemias.[21] Nissl [53] and Alzheimer [54] reported and named the condition known as endarteritis syphilitica of the cortex, in which the primary lesion consists of a swelling and proliferation of the lining cells of the cortical capillaries resulting in the secondary anoxemic changes manifested by diffuse mild ganglion cell degeneration and acellular areas. The mental symptoms in the condition they described resembled greatly those seen in schizophrenia. Menninger [55] and Kamman [56] have called attention to the appearance of a schizophrenic syndrome subsequent to influenza and acute infectious diseases. Manic-depressive phases also occur subsequent to the acute infectious diseases. The numerous types of behavior disturbances, following encephalitis, need not be repeated.

The encephalograms obtained in the patients with functional psychoses are in many respects not dissimilar from those of the admittedly organic psychoses.

The encephalograms of those patients in whom considerable deterioration has occurred not infrequently present a greater degree of cortical atrophy, particularly involving the parietal lobe. Winkelman and Silverstein [57] reporting a series of parietal lobe tumors, have noted mental disturbances and psychotic manifestations in several patients of the series. In a number of the encephalograms which had been repeated, the increased cortical atrophy involved the parietal lobe to a considerable degree, and the course of these patients during the interval between encephalograms had been one of progressive mental deterioration.

The rather gross representation in the encephalogram of such abnormal findings as cortical atrophy, enlargement of the ventricular system, symmetrically or asymmetrically, enlargement of the cisterns, cerebellar atrophy, and absence of air markings, is, we feel, the reflection of the cerebral histopathology wrought by many causes.

Conclusions.

1. The encephalograms in the organic psychoses have indicated cerebral pathology by deviations from the normal cerebral architecture.

2. The encephalograms in schizophrenia, manic-depressive psychosis and epilepsy with psychosis have shown deviations from the normal cerebral architecture.

3. In the encephalograms of patients with dementia paralytica and schizophrenia there is a tendency to an individual pattern-complex which characterizes the condition.

4. Not infrequently, a mental deterioration is found to be more marked in those patients in whom the encephalograms reveal a selective parietal lobe atrophy.

5. The encephalograms in the various groups of psychoses presented have all been abnormal.

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ON UTILIZING INSTITUTIONALIZED MENTAL PATIENTS TO INFLUENCE OTHER PATIENTS PSYCHOTHERAPEUTICALLY.

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There is as yet a great paucity of effective or beneficial procedures in the institutional treatment of chronic mental disorders. Any step, which has shown itself as aiding in the recovery or as helpful in bringing about a better adjustment to the surroundings of the chronic psychotic should be presented to critical scrutiny. Such a step may be quite humble or simple and yet be productive of a great deal of improvement.

When one walks through the closed wards of a public institution for the treatment of mental diseases, he is soon struck by the fact that almost all patients sit by themselves, usually oblivious of the presence of other people. What can be done to rouse them out of this state? An interested, intelligent attendant can achieve a great deal of good with those people, but such an attendant usually does not stay long or is soon promoted to a better position. Occupation or the assignment of some interesting task should help, but mechanized and routinized, as institutional work always becomes, it tends usually to make the patient even more of an automaton than he was before.

It has been widely accepted that there are some psychogenic factors in almost all mental disorders; in many these psychogenic factors may be predominant; and in some mental disorders psychogenic factors may be operating exclusively. The obvious approach to these factors would be some form of psychotherapy.

Very few public mental institutions can boast of people trained to practice psychotherapy directly and their results are not always what they might be. This is often due, in large part, to the fact that the psychotherapist cannot establish rapport with the patient. There are numerous instances of success, however, in those cases in which the personalities of the psychotherapist and the patient agree with each other.

There will probably never be enough trained psychotherapists in public institutions to treat all those that could be benefited by psychotherapy. Why cannot the most plentiful supply in institutions, the patients themselves, be used to influence other patients psychotherapeutically; and if they can, what would be a possible *modus operandi?*

It has been not infrequently noticed by the writer that one patient will befriend another, or at least make some feeble attempts in this direction. When this was not resented by the other patient, most desirable results have followed. Occasionally such a procedure has been encouraged by the writer with very happy consequences. While it should be realized that a homosexual factor, usually much masked, may come into play in such a situation, these tendencies need not become disturbing with the average attention and cooperation of the ward help and could easily be sublimated into good fellowship. A comfortable ward adjustment, of two formerly unhappy patients, eventuates.

Out of a series of similar cases all obtained in chronic wards, a few instances might serve as illustrations:

(1) A cranky arteriosclerotic, 86 years of age, formerly a business man, father of two daughters, apparently devoted to him, had been in the institution for two years. He was continually finding fault with the attendants and patients. He thought they stole his clothing, kept him unclean, detained him illegally. His daughter kept complaining to the physicians because she believed her father's stories. Things became critical when the patient began to apply his cane to the ward attendants. At that time another 70-year-old patient, six years in the institution, who had had ground parole, suffered a cardiac breakdown. The latter had been a fairly good "mixer" and quite sociable. When his heart function became normal after treatment with digitalis, he was very hypochondriacal and refused to get out of bed. He was quartered in a two-bed room with the first patient and requested to help and humor the first patient. The two took to each other at first sight and became fast friends. The arteriosclerotic at first chided and later coaxed the cardiac out of bed and the two talked things over by the hour. For the last nine months not a single "kick" has been voiced by the formerly inveterate complainer, while his "buddy," the heart case, is up and about and even willing to help with minor ward activities. The two old men are still quite attached to each other.

Another instance is perhaps more striking:

(2) A feeble-minded male, aged 40, a low-grade moron, a fairly sociable person, had been living formerly with his older brother and family. This brother had been quite devoted to him. In the institution since 1924 he made

various complaints about his digestion. He was sent to the internist of the local general hospital, who recommended operation for gastric ulcers. A gastro-enterostomy was performed, but he did not improve. Later the gastro-enterostomy was "unhooked"; but he still complained. A third abdominal operation was performed, but the result was not beneficial. In 1930 another patient, a male, Italian, aged 38, a member of a family of five brothers and one sister, all apparently attached to each other, was transferred here from another institution, where he had been since 1927 with a diagnosis of catatonic excitement. He had been a very difficult patient in the other institution, screaming, singing, dancing on one foot, tearing his clothes, and continually in mischief. This other institution is located only a half mile away and one of the physicians there, interested in the patient, remembered that the latter had been equipped with a new suit and straw hat at the outset of the short trip of transfer. On inquiring how this patient had stood the trip, he was amused, but not surprised to learn that the latter, before leaving the building, had eaten the straw hat. The feeble-minded patient mentioned above was introduced to this patient and upon the suggestion of Dr. P. H. Rupp was asked if he would help keep him quiet. A friendship sprang up between the two quickly and within a few days they became quite attached to each other. There has been no physical complaint from the first patient with the exception of a period following his return from a 14 days' stay outside of the institution with his brother, when he began vomiting again. The second patient is much quieter, sits with the better class of patients, keeps his clothing on, and for short periods is able to carry on a conversation. They often sit together on the ward. Furtive holding of hands and even fondling has been noticed.

(3) A 77-year-old woman, married, had been very difficult to manage at home for many years. She and her husband had been supported in the households of her two married daughters. She was said, according to the report of the medical examiners on the certificate of admission, to have "delusions and hallucinations and was confused and destructive. She believed somebody wanted to do her harm, saw bugs and vermin about, wandered about at night." She weighed 82 pounds at the time of admission June 7, 1932, ate little and slept poorly. On the same ward there was a 28-year-old epileptic girl, rather attractive in appearance and manner, but showing a marked epileptic narrowness, stubbornness, tendency to quarrel, and pettiness. This patient had previously evidenced exaggerated affection and tenderness for an older woman attendant, and this affective display had not remained unreturned; so much so, that it was thought advisable to transfer the woman attendant to another ward. When this epileptic was told to assist with the first mentioned patient, to keep her clean and feed her, the older woman responded at once to the fervent ministrations of the younger patient. "Mrs. G. is like a mother to me; I love to help her!" said the younger patient. "Mabel is like a daughter" was a frequent remark of Mrs. G., the older woman. Mrs. G. gained 40 pounds (almost half her body weight) in six months and is at present practically recovered mentally. The younger epileptic is one of the most reasonable and useful patients on the ward, as

far as her disposition and working capacity are concerned; also her epileptic attacks occur much more rarely at present. The two patients spend some time together during the day, and are watched carefully.

(4) A 69-year-old senile, of whose past history little is known, had been in the institution six months. At first he would not walk and could be but slowly induced to sit in a wheel chair. The certificate of the medical examiners stated on admission that "he has variable delusions and hallucinations. He is confused and disoriented. His speech is thick and conversation disconnected. He is noisy and restless."

One day a husky young epileptic, a member of a family of 10 siblings, rather closely devoted to each other, a quiet quite deteriorated chap, who was in a chair beside the first patient, pitched forward in an epileptic fit, when the old man showed signs of interest. Asked to help he actually climbed out of his chair and assisted in keeping other patients away. From that time on he was interested in the younger patient, and soon began to walk again. He delights in taking the epileptic and another young feeble-minded patient to the toilet and watches over these two with a tenderness almost motherly. He is quite interested now in what goes on about him.

Comment

This paper reports an attempt at socialization of chronic ward patients. Many administrators fear or discourage situations like those described when they occur spontaneously, because of possible untoward happenings. Our experience has shown that usually no such fear need be entertained, with care and watchfulness on the part of attendants. On the other hand, quarrelsome, fault-finding, unhappy patients have become quiet, more reconciled to their surroundings, and have found moderate contentment.

It was noted that most of the patients, entering the relationships discussed above, have enjoyed more or less close family connections and ties. When they have become institutionalized, loneliness or isolation play, no doubt, a rôle in their adjustment, or rather, lack of it. Situations such as those discussed in this communication appear to show the way in the direction of their resocialization.

The method of choosing candidates for such relationships naturally cannot be outlined definitely. Many such friendships bud spontaneously and care must be exercised not to disturb their shy beginnings, when they do not interfere with the ward routine or the precautions necessary for the safety, welfare, or comfort of others. Possibly it is of more importance to decide what not to do or when not to interfere, than actually to promote these relationships.

Much depends upon the physician's intuition, or even the ward attendants' ability to observe.

In most, if not all, such relationships a homosexual factor or trend seemed to appear. It is very difficult to differentiate in each instance between manifest homosexual trends and companionship needs in the broader sense. As long as order and decorum are preserved, it will probably not be necessary to draw the line too closely. Of course, if such a situation becomes so obvious as to cause justified criticism, it will have to be discontinued at once by separation, or possibly transfer of the offending party to another ward.

The writer has had 20 such couples under observation. In all of them the results have been favorable, inasmuch as all the parties entering into them have improved in their ward adjustment. However, it must be said, that the pairs have been watched very carefully and the selections have been made very cautiously, taking into consideration the patients' natural inclination, as well as the ward attendants' willingness and ability to observe.

Summary.

Can a patient, whose personality agrees with that of another patient, influence that patient favorably from a psychotherapeutic standpoint? An answer in the affirmative appears indicated by several observations of the writer. These observations were all made on chronic wards. Usually a homosexual component was noted, was not of serious import and did not interfere with the beneficial results of the patient relationships.

CHEMICAL STUDIES IN THE EPILEPTIC SYNDROME.

II. Nocturnal and Diurnal Rhythm in Blood Chemistry.*

By HELEN HOPKINS, M. D.,† Los Angeles.

I. Introduction.

The observation of Gowers [24] and others,[33, 47, 51, 57] that sleep has a stimulating influence upon the seizures of the epileptic syndrome, has led to the present investigation. The mechanism through which altered susceptibility to convulsions during sleep is accomplished has not been discussed by any of the authors. Interest is at once directed toward the manifold changes which develop within the body under the conditions of sleep. Reviews of the literature on the sleeping state have been prepared by Piéron [53] and Kleitman.[38, 39, 40, 41]

Sleep possesses other important implications besides those relating to convulsive disorders. Schneider [60] and later Watson and Finlayson [67] showed that more deaths occur during the latter half of the sleep period than at any other time of the day or night. MacWilliam [49] brought out the significance of sleep in other pathological states. Twenty years out of a life span of 60 years are given over to sleep [45]; hence, in point of time alone, spent in this retreat, acquaintance with the changes instituted within the body should be acquired.

The present experiments offer a chemical approach to the subject of sleep, with particular emphasis upon those features which have direct bearing upon the convulsive state.

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From the Department of Neuropsychiatry, Stanford University. Supported in part by the Rockefeller Fluid Research Fund of the Stanford Medical School.

† With the technical assistance of Rita Canessa.

II. The Physiology of Sleep.

Water Balance.—The blood undergoes measurable dilution during sleep. Gollwitzer-Meier and Kroetz [23] observed this to occur two hours after the onset of sleep. Hemoglobin and specific gravity values were found by Dreyer, Bazett and Pierce [17] to show direct parallelism, declining on the average of 10 per cent at midnight. In connection with this hemodilution, all bodily secretions have been shown to be suppressed,[18] the urinary output declining to a very low level.[62] There is additional evidence to suggest that the organs and tissues of the body share in this water-shifting. Shepard [61] has demonstrated increases in the brain volume and intracranial pressure, while others [50, 65] have noted an increase in the volume of the extremities. Tissue avidity for water was shown by Sager and others [58] to be greater at 4 a. m. than at any other period of the day.

Body Temperature.—A decline of one to two degrees centigrade in body temperature occurs during sleep, attaining minimal values between 3 and 6 a. m.[4, 22, 52] Woodhead and Varrier-Jones [68] interpreted this fall in body temperature as being due to decreased muscle action and tissue oxidation. Benedict [5] was able to establish a reversal of the temperature rhythm in a night-watchman and was led to attribute the decline in body temperature to sleep *per se* and not to the time of day.

Body Metabolism.—During sleep, oxidation within the tissues of the body is reduced below the basal level for the diurnal period. Benedict,[6] as well as other workers,[1, 15] obtained a reduction of from 13 to 20 per cent in metabolic rate values. Grollman [27] showed minimal oxygen consumption to occur between 3 and 6 a. m.

Respiration.—Respiratory activity is altered by the onset of sleep. Kleitman [40] reported a decrease in rate, increase in depth, and prolongation of the expiratory phase. The total result was a diminution in pulmonary ventilation. Irregularities in the respiratory rhythm were observed by Reed and Kleitman,[56] who also noted that during the deepest sleep regular rhythm became established.

Cardio-Vascular Changes.—The pulse rate has been shown to decrease 20 or more beats below the diurnal basal rate.[9, 36, 42] Boas and Weiss,[8] as well as Grollman,[27] agree that the lowest values appeared between 2 and 6 a. m. Incidental to the removal of

the diurnal reflex stimulation of the heart during sleep, Kleitman [40] found the pulse rate to be stabilized in rhythm and to reach as low as 36 per minute in some subjects.

The blood pressure variations during sleep have been carefully studied by Howell,[35] Hill,[31] and many others,[7, 10, 11, 12] having been shown to parallel the declining pulse rate values. Lowest estimations were reported by Grollman [27] to occur between 2 and 4 a. m., while Kleitman [40] obtained steadily decreasing pressure readings from 11 p. m. to 3 a. m. Landis [46] felt convinced that falling blood pressure values were not due to change in body position but to sleep *per se,* since the values could be correlated directly with the level of consciousness.

The cardiac output becomes reduced during sleep, reaching the lowest point between 3 and 6 a. m. Grollman [27] emphasized the fact that the oxygen consumption, body temperature, pulse rate, blood pressure, cardiac output, and arteriovenous oxygen difference all reach sub-basal levels during sleep, meaning that the values fall below the basal level for the diurnal period. These changes were attributed to the general decline in protoplasmic oxidation incidental to bodily relaxation.

III. The Chemistry of Sleep.

Plasma pH.—Collip [14] as well as Kunze [44] attributed the rising hydrogen ion concentration of the blood during sleep to diminished activity of the respiratory center, resulting in decreased pulmonary ventilation and elevation of the carbon dioxide content of the alveolar air and the blood.[19, 69] Indirect evidence for the shifting of the titre of the blood toward alkalinity during the latter half of the night is furnished by the work of Price-Jones.[54] The author found that the changes in size of the red blood corpuscles from hour to hour varied directly with the hydrogen ion concentration of the blood, swelling with increasing acidity and shrinking with alkalinity. Observations made with the time of day in mind demonstrated that an active day was characterized by steadily increasing size of the blood cells; and from midnight to 8 a. m. the opposite condition developed, the cells becoming greatly reduced in size. This result was explained by the author on the basis of the early morning "alkaline tide" known to result from the respiratory readjustments with return of conscious activity.

Alkali Reserve.—Collip [14] determined the alkali reserve of nine subjects just before the onset of sleep and upon awakening, and concluded that there was either no change or a decrease in values as a result of sleep. Endres [19] was unable to detect any appreciable change.

Alveolar Carbon Dioxide Tension.—The rising values in alveolar carbon dioxide tension observed during the first hours of sleep have been attributed by many to lowered pulmonary ventilation resulting from depressed respiratory center activity.[19, 55] Alveolar carbon dioxide tension was found by Bass and Herr [3] to be greatest at the end of the first hour of sleep, from this point on declining regularly throughout the night.

Blood Changes.—Blood dilution during sleep was shown by Gollwitzer-Meier and Kroetz [23] to be accompanied by a decline in blood protein values and an elevation in the chloride, phosphate and sodium salts. The bicarbonate, potassium and calcium values remained unchanged. It was assumed that the flow of a protein-poor, sodium chloride-rich, phosphate-rich fluid from the tissues into the blood occurred during sleep. Haldane [29] and others described an elevation in blood phosphates, while Demole [16] obtained a decrease of 6 to 9 per cent in total calcium values. The cholesterol content of the blood has been shown by the writer [34] to decline during sleep, attaining lowest values between midnight and 3 a. m.

Urinary Changes.—The urine becomes very acid during the early hours of sleep, a direct result of the elevated carbon dioxide tension in the alveolar air and the blood. As morning approaches and the awakening process sets in, the urinary titre swings to the opposite condition of alkalinity, the so-called "alkaline tide." [48] Urinary volume is reduced to 12 or 13 c. c. per hour between 10 p. m. and 7 a. m., according to Simpson.[62, 63, 64]

IV. Experiments.

Evidence derived from the literature and from the writer's personal experience with convulsive disorders [33] points to the latter half of the nocturnal or sleep period as having unusual significance in the epileptic syndrome,[57] since this period is characterized by a predominance of seizures. The water-shifting,[32] intracranial pressure, and brain volume changes, as well as the "alkaline tide" and

perhaps other changes may be considered to influence the susceptibility of the individual to seizures.

It was planned to study the chemical changes within the body by serial analyses of the blood throughout a 24 hour period in each subject. Samples of blood were taken at intervals of three hours. The chemical elements studied were those recognized to have some bearing upon the convulsive state. Plasma pH, carbon dioxide combining power, diffusible and total serum calcium, serum inorganic phosphorus, serum albumin and globulin, and the hemoglobin content of the blood were determined. The subjects comprised five normal controls and seven pronounced cases of the epileptic syndrome.

Methods.—The pH determinations were made according to the colorimetric method of Hastings and Sendroy,[30] and the alkali reserve by the method of Van Slyke.[66] The Sahli method was used for the determination of hemoglobin concentration. The albumin and globulin fractions of the serum protein were determined colorimetrically by the technic of Greenberg.[25] The serum sodium was measured by the iodometric method of Kramer and Gittleman.[43] The Gunther and Greenberg [28] modification of the Fiske and Subbarow [20] method for serum inorganic phosphorus was employed. The total serum calcium was determined by the Clark and Collip [13] procedure, as modified slightly by Kirk and Schmidt.[37] The diffusible serum calcium was determined by the Greenberg and Gunther [26] method.

V. Experimental Results.

The results of the 24 hour observations have been expressed graphically in Figs. 1-7. The solid-line curves represent the average of the total number of determinations for any given period of the day. The symbol "x" has been utilized to indicate each single determination.

Referring to Fig. 1, it will be seen that, by the colorimetric method of Hastings and Sendroy, the plasma pH showed too little variation from hour to hour to permit interpretation. The group of convulsive individuals, however, showed a uniformly higher level of pH than the normal controls, with values concentrated around the 7.5 level in contrast to the 7.4 level of the normal group. The frequent association of alkalosis and epilepsy in the literature is supported by these results.

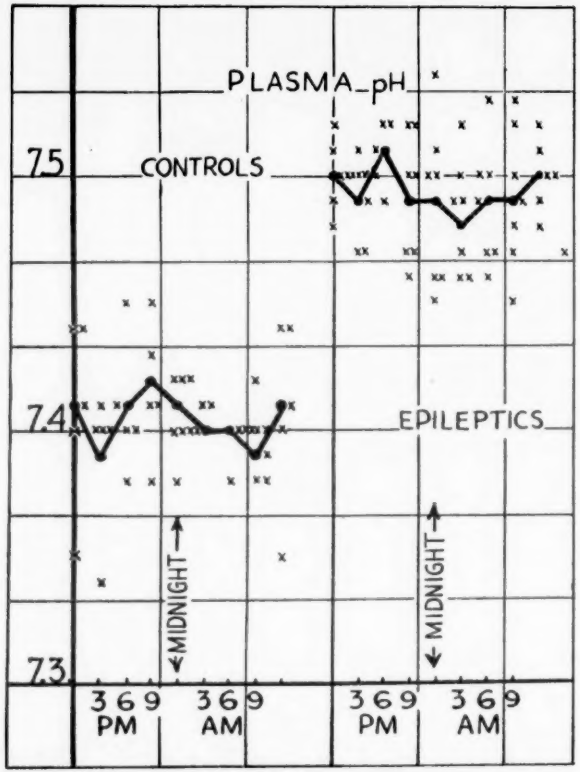

PLASMA pH
7.5
CONTROLS
7.4
EPILEPTICS
7.3
MIDNIGHT
MIDNIGHT
3 6 9
PM
3 6 9
AM
3 6 9
PM
3 6 9
AM

FIG. 1.

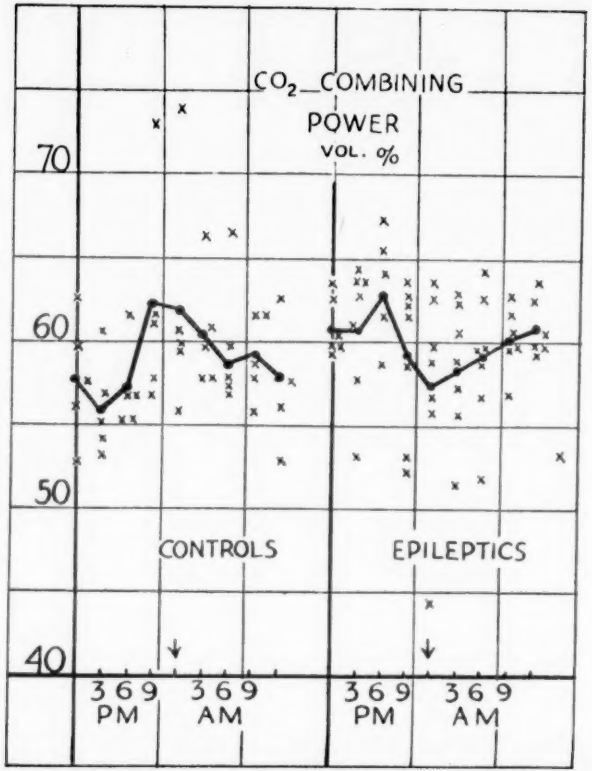

CO_2 COMBINING POWER
VOL. %
70
60
50
40
CONTROLS
EPILEPTICS
3 6 9
PM
3 6 9
AM
3 6 9
PM
3 6 9
AM

FIG. 2.

FIG. 1.

FIG. 2.

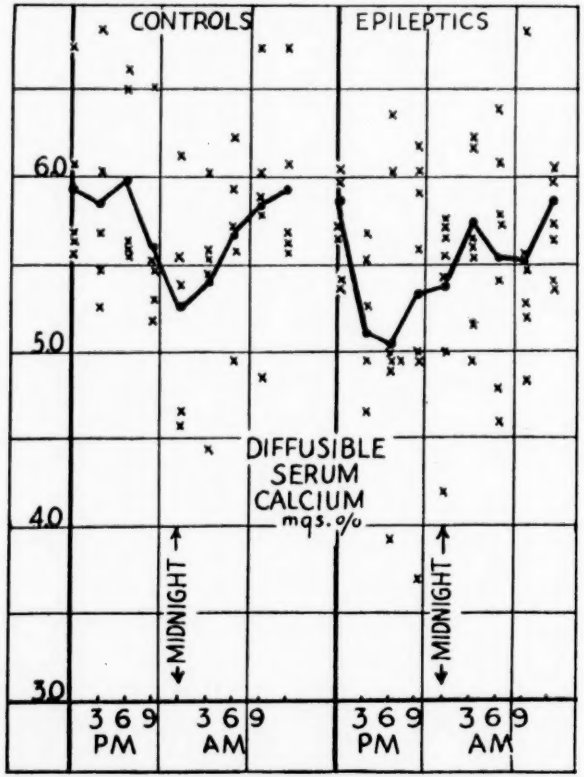


FIG. 3.

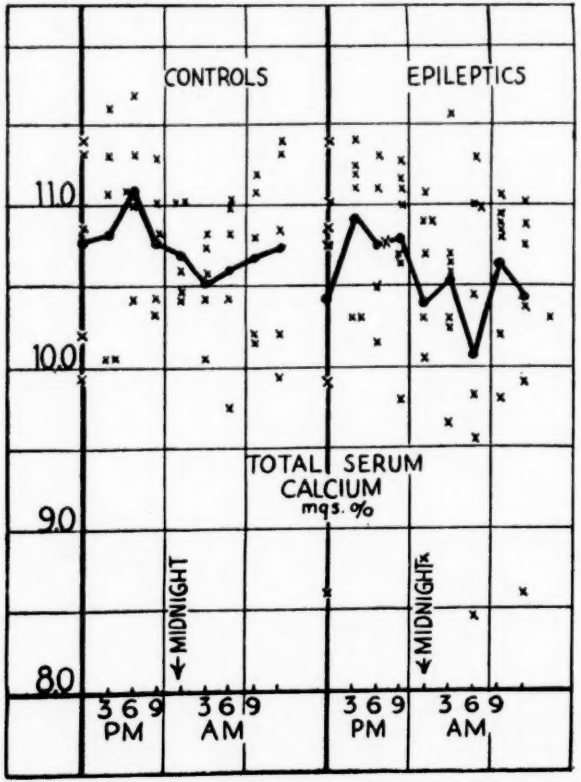


FIG. 4.

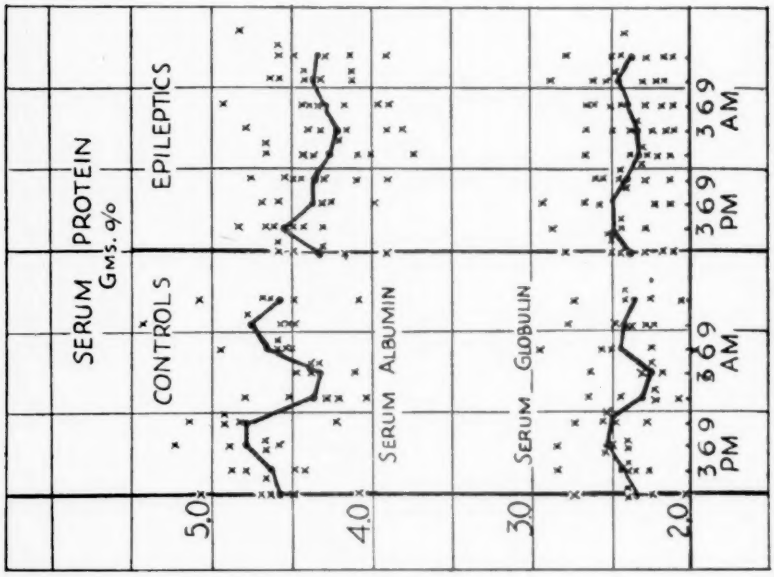

SERUM PROTEIN
Gms. %
CONTROLS
EPILEPTICS
5.0
4.0
3.0
2.0
SERUM ALBUMIN
SERUM GLOBULIN
3 6 9 PM
3 6 9 AM

FIG. 6.

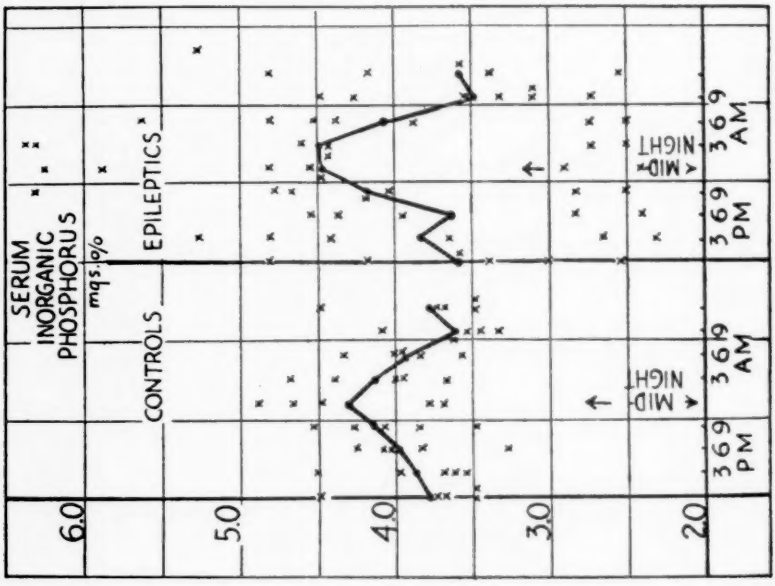

SERUM INORGANIC PHOSPHORUS
mgs. %
CONTROLS
EPILEPTICS
6.0
5.0
4.0
3.0
2.0
MID-NIGHT
3 6 9 PM
3 6 9 AM

FIG. 5.

The carbon dioxide combining power of the plasma (Fig. 2) did not vary greatly from hour to hour, but declined slightly during the nocturnal period.

Variations in the blood calcium were followed in terms of diffusible and total serum calcium (Figs. 3, 4). Both groups of subjects

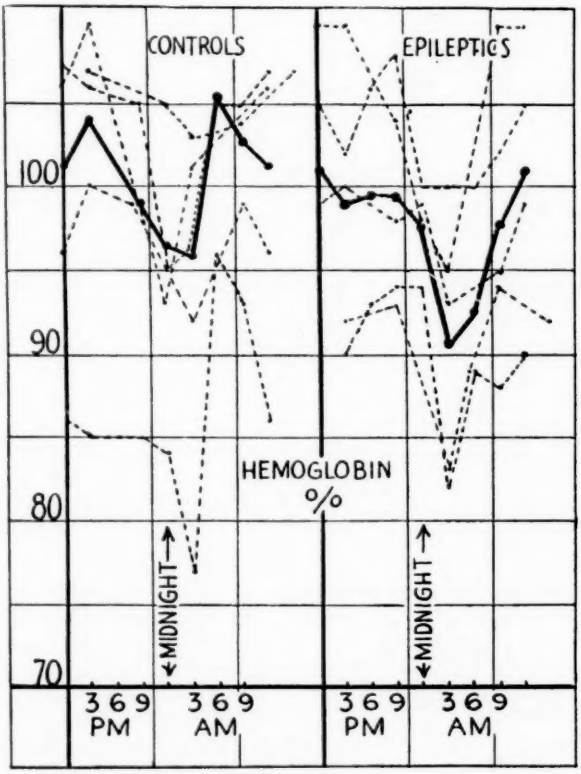


FIG. 7.

showed analogous curves, with a 15 per cent (minus) fall in the diffusible fraction, lowest at midnight in the normal group, and occurring at an earlier period in the convulsive group. The total serum calcium values displayed less pronounced excursions, but showed steadily decreasing values during sleep.

The reciprocal relationship of calcium and inorganic phosphorus content of the blood was born out by the results of the analyses.

As the calcium values declined, inorganic phosphorus values increased. The direction of the shift in the inorganic phosphorus values was identical in the two groups (Fig. 5), while the extent of increase was greater in the epileptic subjects. Highest values were reached in both groups between midnight and 3 a. m. It is noteworthy that the separate determinations for the epileptic subjects covered a much wider range of variation than for the normal group, indicating possibly a disturbed phosphorus metabolism. Two of the subjects had seizures between the hours of midnight and 3 a. m.

CHEMICAL RESULTS.

TABLE OF AVERAGES, TWELVE SUBJECTS.

		12 N	3 P.M.	6 P.M.	9 P.M.	12 M	3 A.M.	6 A.M.	9 A.M.
Five normals	Plasma pH	7.41	7.39	7.41	7.42	7.41	7.40	7.40	7.39
	CO_2 Comb. P.	57.73	55.94	57.06	62.03	61.93	60.41	58.61	59.09
	S. Globulin	2.35	2.44	2.53	2.51	2.31	2.23	2.44	2.42
	S. Albumin	4.58	4.64	4.78	4.77	4.36	4.33	4.65	4.75
	S. Inorg. Phos.	3.77	3.86	3.98	4.14	4.30	4.13	3.93	3.60
	Diffusi. S. Ca	5.94	5.85	5.98	5.60	5.25	5.40	5.67	5.84
	Total S. Ca	10.74	10.82	11.10	10.77	10.70	10.52	10.60	10.68
	S. Sodium	306	314	310	312	314	316	313	311
	Hb (Sahli)	101	104	.....	99	96.4	95.8	105.5	102.7
Seven epileptic cases	Plasma pH	7.50	7.49	7.51	7.49	7.49	7.48	7.49	7.49
	CO_2 Comb. P.	60.88	60.81	63.29	59.13	57.35	58.33	59.01	60.13
	S. Globulin	2.37	2.49	2.49	2.40	2.32	2.33	2.39	2.45
	S. Albumin	4.33	4.55	4.36	4.36	4.26	4.22	4.29	4.37
	S. Inorg. Phos.	3.58	3.84	3.62	4.18	4.46	4.48	4.06	3.49
	Diffusi. S. Ca	5.87	5.21	5.05	5.34	5.38	5.75	5.54	5.52
	Total S. Ca	10.42	10.93	10.76	10.80	10.40	10.53	10.08	10.65
	S. Sodium	314	323	323	316	324	320	316	315
	Hb (Sahli)	101	99	99.5	99.4	97.7	90.6	92.6	97.8

on the night of the experiments. The most pronounced preconvulsive blood chemical change was an elevation in the inorganic phosphorus level. Inorganic phosphorus possesses the property of precipitating calcium out of solution in an insoluble calcium phosphate form, lowering the physiologically active diffusible calcium fraction, and by this means indirectly augmenting cellular irritability. This occurrence would favor the development of a convulsive reaction.

The highest inorganic phosphorus values coincided with maximum hemodilution, indicating the influx of fluid of high phosphorus content from the tissues into the blood.

The serum albumin and globulin values declined between the hours of 9 p. m. and 3 a. m., paralleling, with some degree of accuracy, the degree of hemodilution (Fig. 6).

The hemoglobin content of the blood (Fig. 7) was determined for the purpose of detecting the changes in the fluid content of the blood. This method has been used previously by Barbour [2] and others.[17] The broken lines of Fig. 7 express the variations in hemoglobin values for each subject, the average for all subjects being indicated by the solid line. No difference is observed between the two classes of subjects. Hemoglobin values declined approximately 10 per cent between the hours of midnight and 3 a. m., indicating hydremia of the same extent.

VI. Summary.

The results of the present investigation, dealing with the rhythmic diurnal and nocturnal changes in blood chemistry and water balance, indicate that the quality of these changes may be correlated with the clinical observation of increased susceptibility to seizures during sleep, particularly after midnight.

From the literature may be gained evidence for a shift of the blood and urinary titre toward the alkaline side during the early morning hours, as well as rising intracranial pressure and brain volume during sleep. In addition, the cholesterol content of the blood has been shown to fall consistently during sleep, reaching minimal values at 3 a. m. Each of these changes has been considered by others to be definitely related to the precipitation of seizures in susceptible individuals.

The acid-base, water-shifting, and ionic blood changes of the present experiments are qualitatively of the type to encourage the development of seizures during the latter half of the period of sleep. These rhythmic changes are observed to occur in the normal as well as in the epileptic subjects, and may be interpreted as the normal rhythm for blood chemistry.

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A PSYCHIATRIC CONCEPT OF ACUTE ALCOHOLIC INTOXICATION.

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In the course of the past thirty years following the early investigations of Grehant, Nicloux and others, the pharmacological actions of alcohol have been generally explored and the directions that will be taken in further research clearly indicated. The passage of alcohol from the gastro-intestinal tract into the blood stream and its subsequent action on the central nervous system, on the respiratory and excretory mechanisms and on the circulation have been subjected to familiar experimental scrutiny—in many instances with great quantitative precision—so that by now the pharmacology of alcohol can be considered definitely outlined. The prophetic generalization of Schmiedeberg in 1833 [1] that the pharmacological action of alcohol on the cerebrum is purely depressant has been found, most pharmacologists will agree, to characterize its action in general on all tissues.

Along with this real progress in pharmacology it is striking how very little has been contributed toward understanding the protean symptomatology presented by the clinical picture of acute alcoholic intoxication; while the biologists, physiologists and pharmacologists have been elucidating how alcohol affects the heart, the brain, the lungs and the kidneys, the problem of the action of alcohol on the individual as a whole with the part contributed to the clinical picture by constitutional and environmental factors has been left aside or only indirectly touched upon.

The Symptomatology of Drunkenness.

The symptoms of acute alcoholic intoxication are numerous, diverse and of varying degrees of severity; they may be conveniently considered in two general groups: (a) physical symptoms and (b) mental symptoms, including disturbances of behavior, of speech, of mood, of intellectual functions such as memory, " reason-

ing" and judgment, together with changes involving distortion of the outside world.

The physical symptoms of acute alcoholic intoxication consist, in the main, of disturbances of the sensory and circulatory systems and disorganization of muscular coördination. "This is drunkenness, when the mind is changed, the tongue stammers, the eyes are disturbed, the head is giddy, the belly is swelled, and pain follows." [2] Eight hundred years after King Ecbright made the preceding observations, Lord Bacon stated: "Drunken men imagine everything turneth round; they imagine that things come upon them; they see not well things far off; those things that they see near at hand they see out of their place and sometimes they see things double." [3] Swinburne was subject to diplopia after the consumption of relatively small amounts of alcohol so that when reading a poem after drinking he would close one eye to shut out the extra image.[4] The effect of alcohol on the perception of pain is illustrated by its use for surgical anesthesia prior to the advent of ether and chloroform; among the natives in Uganda its use in cæsarian section has been recently reported.[5] Noël du Fail noted in 1548 the expression, "drunkards charm the fleas," that is to say, they do not feel their bites.[6]

The conclusion of Dixon and others that, "it (alcohol) causes a constriction of the splanchnic vessels with less supply of blood to the abdominal viscera, and a dilatation of peripheral vessels with a greater supply to the skin and peripheral structures," [7] confirms Sir John Falstaff's observation that wine makes the blood "course from the inwards to the parts extreme. It illumineth the face . . . ."; [8] and the drunken porter in Macbeth concisely summarizes: "Drink, Sir, is a great provoker of three things. Marry, Sir, nosepainting, sleep, and urine." [9] That an increased blood supply to the face is not always associated with drunkenness is suggested in the Reve's Tale: "Wel hath this miller vernished his hed, Ful pale he was, fordronken and nought red." [10]

Tests of muscular coördination (walking a line, finger-to-nose test, etc.) have been utilized diagnostically to determine the existence or non-existence of drunkenness; opinions differ in different times as to how great a degree of muscular incoördination constitutes drunkenness: "Mr. Bowker: 'it is enacted that no member (of the Sublime Society of the Free and Easy Club) shall be con-

sidered drunk or liable to the pains and penalties contingent upon intoxication if he can lie without holding.' Mr. Moonstone: 'Then after he is incapacitated from walking if he can still lie on the floor he is considered sober?' Mr. Bowker: 'He is not considered drunk.'" [11]

Under the influence of alcohol marked changes of behavior occur varying from extreme over-activity to dull lassitude and from unrestrained familiarity to pompous formality. Eccentric and seemingly unmotivated behavior is uncommon; in general, the behavior becomes uninhibited, simpler and cruder and the motive behind the action more apparent. "Loosening of the tongue" is an almost invariable concomitant of the early stages of intoxication. The austere Addison was easily seduced to convivial excess because of this effect: "Sir Richard Steele used to drink his friend Addison up to conversation pitch. . . . ." [12] "The priests of the kingdom of Tibet whom they call Lamas drink a good quantity of wine on their days of fasting and devotion that they may have, to use their own words, the tongue prompt, and ready to say their orisons." [13] As the degree of intoxication becomes greater, simple loquacity may progress through long-winded story telling and haranguing to, ultimately, meaningless incoherent babbling.

The influence of alcohol on the mood is perhaps its most striking and familiar effect: "Give strong drink unto him that is ready to perish and wine to those that be of heavy hearts." [14] Elevation of the spirits, increased cheerfulness and courage with banishment of care and worry are the customary results. "Wine animates the spirit, it makes the heart ready to inflame itself, then come the laughs . . . . , the black cares, the sad disappointments disappear." [15]

> "But oil'd by thee,
> The wheels o' life gae down-hill scrievin',
> Wi' rattlin' glee . . . .
> Thou even brightens dark despair
> Wi' gloomy smile." [16]

Lady Macbeth felt the influence of alcohol on her courage when she remarked: "That which hath made them drunk hath made me bold; what hath quenched them hath given me fire." [17] It was said of Alexander the Great: "with a few cups of wine he would

brag and boast like a swashbuckler." [18] The aphrodisiac action of alcohol has long been recognized: "Sine Baccho, friget Venus"; [19] however, "lechery, Sir, it (drink) provokes and unprovokes; it provokes the desire, but it takes away the performance." [20]

While "renewed youth and vigor, the brisk cheerful sense of things present and to come" is probably the commonest, it is by no means the only and invariable action of alcohol on the mood. General Grant under the influence of liquor was sullen and morose [21] while Charles Lamb became irritable and disputatious: Southey reports that "he got warm with whatever was on the table . . . . and said things to Godwin which made him quietly say, 'Pray, Mr. Lamb, are you toad or frog?'" On another occasion after drinking at a dinner he kept blurting out, "Please God, I'll never enter this cursed house again." [22] A twenty-nine year old patient (H. O. M.) regularly became depressed when under the influence of alcohol and on two such occasions had attempted suicide, once by poison and the other time by stabbing himself with an ice-pick. Bogen describes alcohol as causing a "loss of power to control moods" and summarizes: "Some persons become exalted, gay and garrulous, others sentimental, affectionate, confidential, still others bellicose and boisterous, while some become quiet, depressed and sleepy without any evidence of the usual excitement." [23] Anacreon warns: "No friend of thine let such a man be held who, when he empties cups with thee, is fever'd with rage to brawle and fight, but onely hee with whom the muses and sweete mirth agree." [24]

A vast amount of recent experimental investigation deals with the effects of alcohol on memory; this work has been summarized by Miles: " . . . . it (alcohol) tends to disrupt the smooth and prompt working of memory trains. In answering questions, in committing poetry to memory, in learning a code for use in substitution for other symbols, in learning to associate pairs of words, in rehearsing material that has been learned, or in relearning material, the influence of alcohol tends to diminish effectiveness. The degree of the tendency varies from person to person, from one type of work to another in proportion to the amount and the dilution of the alcohol, etc." [25] On the other hand, Montaigne was struck by the ability of the German mercenaries, encamped in his neighborhood during the civil wars, to remember, though

"drenched with wine . . . . their quarters, their watchword, and their rank." [26] Complete amnesia afterwards for the period of drunkenness is unusual but occurs; partial amnesia is more frequent. A pertinent example of retrograde amnesia is provided by Mr. Winkle of the Pickwick Club who was obliged mistakenly to accept a challenge to duel because he could not remember what he had been doing at the time of a supposed insult: "I took too much wine after dinner and have a very vague recollection of walking about the streets and smoking a cigar afterwards. The fact is, I was very drunk;—I must have changed my coat—gone somewhere—and insulted somebody." [27]

Isaiah described the drunkards of Ephraim: "They are swallowed up of wine, they are out of the way through strong drink; they err in vision, they stumble in judgment." [28] Results of modern experimental studies on the influence of alcohol on the more elusive faculties, "thinking," "reasoning," "judgment," are characterized mainly by their great variability from individual to individual. Cattell concluded after a careful investigation of the intelligence scores of 25 men and 25 women with and without alcohol that "future research must aim not at generalizations as to the action of small doses of alcohol . . . . on human beings, but at statements as to the effects on special groups carefully selected for uniformity of age, constitution and sex." [29]

There is a strong tradition, especially in Bohemian circles, regarding the inspirational and genius-fostering properties of alcohol: this effect is probably very rare and such an impression is determined to a certain extent by the increased loquacity, elevated mood and loss of discriminatory ability occasioned by alcohol. According to Horace: "Ennius himself ne'er sung of arms, martial exploits and war's alarms, till the good father's face did shine, enrich'd with ruby beams of wine." [30] Walter Mapes observed in the 13th century: "I, when I make verse, do get the inspiration of the very best of wine . . . . it maketh sermons to abound." [31] According to Mark Twain, Bret Harte is reputed to have sat up all night and written a 22,000 word story with the help of a bottle of whiskey.[32] Anecdotes of this sort are very common, particularly where the production of poetry is concerned: William King, a contemporary of Steele, was said to have written verse when drunk and prose when sober.[33]

Illusions are not uncommon, especially in the chronic drinker: Thomas Heywood in his *Philocothonista* recounts the illusory experience of a "serving man much over taken with wine" who, emerging from a dark alley behind a tavern on a bright moonlight night, "presently began to apprehend, that the shadow wherein he stood was the Shore, and the Moon-shine a River . . . . therefore he first call'd aloud, A Boate, a Boate, but hearing none to make him answere . . . . he next bethought himselfe, It might be possible for him to wade over, in which conceit he laid by his Cloake, pluckt off his Bootes and Stockings, and then his breeches: when drawing up his shirt to the highest, he laid the rest of the luggage upon his shoulders and staying himselfe upon his Sword, put one foot first softly into the Moon-shine . . . . ." [34] In instances where true hallucinations are reported it would appear to be a question of one of the acute psychoses of the chronic alcoholic (delirium tremens, acute alcoholic hallucinosis) where the symptomatology is independent of the actual presence of alcohol in the body at the time. A sharp distinction is not always easy to make, however, particularly where the symptom-complex of fear and auditory hallucinations of rather specific content on the background of a clear sensorium is concerned; this type of reaction is usually more closely related to the immediate consumption of alcohol than is the contrasting clinical picture of delirium with predominantly visual hallucinations.

Under the influence of alcohol, delusions and misinterpretations that do not appear in the sober state are not infrequently expressed. An out-patient case (W. P. M.) after the consumption of relatively small amounts of alcohol (a glass of beer) regularly begins to accuse his wife of infidelity; when he is sober this idea is denied although he is generally suspicious and jealous. Edgar Allan Poe was singularly sensitive to small quantities of alcohol: "One glass . . . . was sufficient to rouse his whole nervous system into a state of strongest excitement." [35] "Mr. Poe entered and took a drink . . . . as he walked the streets of Philadelphia, it seemed to him that the corner loungers looked at him malevolently and that conspirators were on his tracks." [36]

In general the striking and inescapable impression one gets from a review of the symptomatology of acute alcoholic intoxication is of the almost infinite diversity of symptoms that may ensue from

the action of this single toxic agent. Any attempt to bridge the gap between the uniform pharmacological actions of alcohol and the unpredictable protean psychiatric effect in any individual involves consideration of such factors as dosage, tolerance, and the personality of the drinker.

Tolerance and The Stages of Drunkenness.

Certain relationships obviously exist between the symptoms of acute alcoholic intoxication and the amount of alcohol consumed. An old Midrashic fable approaches the symptomatology of drunkenness from this point of view: "When Noah began planting a vineyard, Satan poured in succession the blood of a lamb, a lion, an ape and a pig over the soil, and said, 'When man shall drink one cup, he will be like a lamb—meek and humble; two cups will make him as strong as a lion; three or four cups will make him romp about irresponsible like an ape; whilst still more will make him roll in the mud like a pig.'" [37]

Magnus Huss in his celebrated treatise on chronic alcoholism describes three stages: "Although the symptoms of drunkenness vary according to the amount drunk, the age, the sex and the individual *'anlage,'* three degrees of drunkenness can be distinguished": the stage of increased activity of bodily and mental functions, with red face, hot skin, pulse full and rapid, spirit free, mood gay, etc.; the stage of muscular incoördination with uninhibited behavior; and the stage of stupor, characterised by more or less complete cessation of understanding, of sensation and of ability to move.[38] Magnan gives a vivid description of deepening drunkenness in which four successive stages can be distinguished: the stages of exaltation, of confusion, of anesthesia, and of coma.[39]

Bogen recognizes five successive stages of acute alcoholic intoxication and attempts roughly to correlate each with a definite concentration of alcohol in the blood:

1. *The "Sub-Clinical" Stage.*—Blood alcohol concentration of less than 100 mg/per cent, "a feeling of euphoria and good fellowship, along with an increased confidence in one's mental and physical powers."

2. *The Stage of "Stimulation."*—Blood alcohol concentration of 100-200 mg/per cent, characterized by "a loss of self-conscious-

ness and self-control, and a weakening of the will-power." There is emotional instability, dilated pupils, accelerated respiration and heart rate, flushed skin and "evidences of impaired muscular coördination can always be detected."

3. *The Stage of Confusion.*—Blood alcohol concentration of 200-300 mg/per cent, loss of power of voluntary attention, pressure of activity, sensory disturbances, vertigo, slurred speech, staggering gait.

4. *The Stage of Stupor.*—Blood alcohol concentration of 300-400 mg/per cent, apathy and general inertia, pupils constricted and skin pale, consciousness impaired and spontaneous muscular movement lacking.

5. *The Stage of Coma.*—Blood alcohol concentration above 400 mg/per cent, "The temperature is sub-normal, breathing slow and stertorous, pulse scarcely discernible . . . . reflexes much weakened or abolished . . . . consciousness, sensation, muscular tone and sphincter control are entirely lost." [40]

Such a classification as Bogen's while useful as a rough practical means of measuring the degree of drunkenness gives the impression of a greater correlation between blood alcohol level and symptomatology than actually exists. It is impossible in any given individual to predict from a knowledge of the concentration of alcohol in the blood what the specific behavior, mood, mental effects or, for that matter, even certain physical symptoms will be. At approximately the same blood level one subject may be to all outward appearance entirely unaffected, another may be elated, over-active, the "life of the party," another dull, silent, morose; one may be pale, nauseated and vomiting, another absolutely unable to vomit in spite of active emetic measures.[41] Recent experimental work shows that after oral ingestion of a standard dosage the concentration of alcohol reaches a higher level in the blood of heavy drinkers than in that of abstainers and thus suggests that the blood alcohol level is not the final sole determinant of tolerance.[42]

No discussion of the stages of drunkenness is adequate without consideration of the question of individual tolerance to alcohol. Tatum and Seevers define tolerance as "a condition developed by certain drugs such that progressively larger and larger quantities are required to produce the effects desired." [43] The experimental development of a slight degree of highly specific tolerance to ethyl

alcohol has been demonstrated in animals,[44, 45, 46, 47, 48, 49] less conclusively in man.[50, 51] The mechanism by which tolerance is acquired is not clear; it is possible that alcohol is destroyed more rapidly in the habituated organism. However, in general, a moderate drinker has greater tolerance than an abstainer and a heavy drinker greater than a moderate drinker, although in certain chronic alcoholics there is not infrequently noted a "break-down" or reduction in tolerance. Arnaud de Villeneuve advised in 1532, "whoever wakes up with a hangover ought to ask himself the reason for his drunkenness: if it be lack of habitude he ought to recommence his drinking to habituate himself to wine and avoid drunkenness." [52]

There is considerable variation in tolerance from person to person and the explanation for high or low tolerance is not always so clear as in the case of the unnamed physician of Drusus, son of Tiberius, "who easily excelled the others in the amounts of drink consumed until he was detected eating bitter almonds before a drinking bout. When prevented from doing this he soon succumbed to intoxication." [53] The Spanish-born, British-blooded Bonosus (281 A. D.), was distinguished by being able to drink without symptoms and was utilized in this capacity by the Emperor Aurelian to drink with foreign ambassadors who would become drunken and reveal their secrets while Bonosus remained unaffected.[54] "Mr. Pitt would retire in the midst of a warm debate and enliven his faculties with a couple of bottles of port. Pitt's constitution enabled him to do this with impunity. He was afflicted with what is called a coldness of stomach; and the quantity of wine that would have closed the oratory of so professed a Bacchanalian as Sheridan, scarcely excited the son of Chatham." [55] Cassio, realizing his limited tolerance, protested to Iago: "Not to-night, good Iago. I have very poor and unhappy brains for drinking . . . . I have drunk but one cup to-night, and that was craftily qualified too . . . . I am unfortunate in the infirmity and dare not task my weakness any more." [56] The Reverend Laurence Sterne, wrote: "I never drink, I cannot do it on equal terms with others." [57]

Tolerance to alcohol is often, as suggested by the preceding quotations, a matter of peculiar personal pride; Darius, king of the Persians, caused to be inscribed upon his tomb: "I could drink much wine and bear it well." [58] A contest of capacity, memorialized

by Robert Burns, was the drinking match at Friar's Carse, "between Captain Riddel and two other magistrates to determine which gentleman should last be able to blow a little ebony whistle which had changed hands many times on these terms; the host disappeared under the table after the sixth bottle (of claret), followed by Lawrie, the parliamentary representative of Dumfries County, who drained his seventh without drawing breath. The winner, Craigdarroch, blew the whistle and passed out after his eighth bottle." [59]

The factors involved in modifying individual tolerance are numerous: in addition to drinking habits, the beverage and its alcoholic content, the quantity and nature of food eaten before or while drinking, the situation, and the physical and mental state of the subject are all determining factors. Dickens appreciated the rôle of the state of mind: "The anxiety of his mind and the numerous meditations which Arabella had awakened prevented his share of the mortar of punch producing that effect upon him which it would have had under other circumstances." [60] The experiments of Platonov and Matskevich indicate that the symptoms of acute alcoholic intoxication can be modified by hypnotic suggestion.[61] The clinical impression that changes in tolerance are frequently associated with post-traumatic conditions is in accord with the findings of Busch who concluded, after studying the influence of alcohol (13 G.) on the ability to add one-digit numbers in 19 patients with brain injury and 5 normal controls, that the deleterious effect is more marked in the former.[62]

Bonhoeffer in 1930 pointed out in reporting a case of dipsomania that the investigation of the different pathological states with respect to the tolerance to alcohol in each has been neglected.[63] Among the many conditions in which tolerance changes may occur are chronic alcoholism, epilepsy and childhood. The effect of alcohol on chronic alcoholics has been the most thoroughly studied: except for isolated case reports little has been added to the account of Bonhoeffer thirty-four years ago,[64] continuous gradations may occur, even in the same individual at different times, from the customary irritability, coarseness, brutality—frequently colored by masochistic trends and ideas of jealousy and conjugal infidelity—so characteristic of acute alcoholic intoxication in a drunkard, through states of motor unrest to conditions of wild and unrestrained delirium. In spite of the voluminous literature on the

relations between alcoholism and epilepsy and the well documented impression that the use of alcohol influences unfavorably the course of the disease, actual data regarding the behavior of epileptics when drunk are few and conflicting. Becker recommends the use of alcohol (40 G.) to induce seizures in epileptics for diagnostic purposes [65] while Küffner states that a single dose of alcohol (60-80 G.) never leads to an attack, and that seizures are very infrequently related to the acute consumption of alcohol by epileptics.[66] Thus, it is not clear whether an epileptic is apt to react to alcohol by having a seizure or not. The reactions of children in acute alcohol poisoning show certain peculiarities that may not be due merely to low tolerance but involve factors of psychic organization. The frequent occurrence of dreamy delirious states and the early appearance of somnolence and stupor are noted in the reports of London,[67] Segers,[68] Kaufman [69] and Obarrio.[70] Alexandroff found differences in the effects of alcohol on the respiration and circulation of rabbits depending on whether they had previously been treated with diphtheria toxin, or hay-infection (*Heujauche*) or were in a state of exhaustion.[71]

In addition to the absolute amount of alcohol consumed, the form in which it is taken, the nature of the beverage, undoubtedly plays a rôle as a factor determining symptoms. The dilution of wine was an important ritual among the ancient Greeks: Mnesitheus, the Athenian physician, counselled: "Wine to our daily feasts brings cheerful laughter, when mix'd with proper quantities of water; men saucy get, if one third wine they quaff, while downright madness flows from half and half." [72] Mellanby [73] in 1919 and Miles [74] in 1922 were able to demonstrate that the more concentrated the solution of alcohol the more rapid and the more intense its action. However, Kurka,[75] after experiments on marksmanship concluded that dilute solutions of alcohol often act more rapidly than concentrated ones and Tuovinen,[76] in tests of the influence of alcohol on his own ability to thread needles decided that 10 per cent alcohol acted more quickly and powerfully than 60 per cent, although usually with lower concentrations the stronger the solution the greater the effect. Aristotle concluded that, "They who have drunk beer fall on their backs . . . . they who get drunk on other intoxicating liquors fall on all parts of their body." [77] Levine Lemnie noted in 1581, "for one force and effect hath Spanish wine,

another French, another Maluesy, another Corsicke, and another Rhenishe." [78] Doctor Johnson declared: "claret is the liquor for boys; port for men; but he who aspires to be a hero must drink brandy . . . . brandy will do soonest for a man what drinking *can* do for him." [79] Graf in an extensive investigation of the comparative psychological effects of cognac, wine and beer concluded that differences in the actions of the different drinks were referable solely to the different concentrations of alcohol in each.[80] Vernon and his associates in experiments on the influence of alcohol on manual work and neuro-muscular coördination with claret and with pure alcohol solutions of equal alcoholic strength showed that claret was slightly the more toxic.[81] It has been shown that carbon dioxide greatly facilitates the absorption of alcohol by the gastric,[82] and to a less extent by the intestinal,[83] mucosa; its presence in champagne and other effervescent beverages is unquestionably reflected in the effects of these drinks. The effects of substances other than alcohol in alcoholic beverages may assume great importance as in the case of absinthe and other liqueurs and cordials and in the native drinks of primitive people.[84, 85, 86, 87] That the atypical sequelae [88,89] of the use of contraband liquor are due more to changed drinking customs attendant upon National Prohibition than to the deleterious effects of adulterants is suggested by the investigations of Atkinson,[90] Hunt [91] and Howard.[92]

Personality and Types of Drunkenness.

An empirical approach to the symptoms of drunkenness in any given individual with reference to the elements contributed by his personality with its constitutional and experiential components antedates the development of precise pharmacological knowledge of the effects of alcohol. It has long been recognized that different people react differently to drink; the attempt to distinguish types of drunkenness and to correlate these types with different types of people is not new.

For medieval medicine the problem was not very difficult; when all people could be easily grouped into four complexions or temperaments (choleric, sanguine, phlegmatic, melancholic) it was reasonable to suppose that a person would react to alcohol in the manner appropriate to his complexion.

The choleric hath nature of fire, hot and dry, naturally is lean and slender, covetous, ireful, hasty, brainless, foolish, malicious, deceitful, and subtle where he applieth his wit. He hath wine of the lion, that is to say, when he is drunken he chideth, fighteth, and commonly he loveth to be clad in black, as russet and grey.

The sanguine hath nature of air, hot and moist. He is large, plenteous attempered, amiable, abundant in nature, merry, singing, laughing, liking, ruddy, and gracious. He hath his wine of the ape, more he drinketh the merrier he is, and draweth to women, and naturally loveth high coloured cloth.

The phlegmatic hath nature of water, cold and moist. He is heavy, slow, sleepy, ingenious, commonly he spitteth when he is moved, and hath his wine of the sheep, for when he is drunken he accounteth himself wisest, and he loveth most green colour.

The melancholic hath nature of earth, cold and dry. He is heavy, covetous, backbiter, malicious, and slow. His wine is of the hog, for when he is drunken he desireth sleep, and to lie down. And he loveth of black colour.[93]

The use of animals to designate the different clinical types of drunkenness was current for a period of at least 400 years (A. D. 1200-1600) and is probably of haggadic origin. George Gascoigne in his temperance treatise, *A Delicate Diet for Daintie Mouthde Droonkardes* (1576), described seven varieties of intoxication: " Mary, as there are on earth sundrye sortes of Beastes, so seemeth it that this Sorceresse (*Drinke*) doth also in her transformed Crewes, observe a wonderfull varyetie: For some men delyghting in her onely for pleasure, and good fellowship, (as they terme it) doo no furder exceede then into a certaine jocunde myrth, and dallyaunce: and yet therein also they chaunce most commonly to geve no small cause of offence. Then, this sorte of Droonkards, I can best compare unto Apes, whose peevishe propertie, is to bee delyghted with everie fonde toye, and tryfle: and whose busie nature can seldome or never be exercysed, without hurt or dommage. Another sort of men, stepping a foote further, doo fall unto brawlyng and quarrellyng: not unlyke to the Beares and Boares of the Forrest, whose chiefe delyght consisteth in pertycular combat with theyr owne kind. Another sort (of a more mallicious nature) wyll lye in wayte (in theyr droonkennesse) to entrap their companions with some disceypt. And such I accoumpt (for all theyr cunning) transformed into Foxes, and wyly Wolves. What shoulde I speake of the Lecherous Droonkarde, who (lyke a Goate) wyll spare neyther Sex, Age, Kyndred, nor companion, in the fylthy heate of his lewde concupyscence. Or of the prowde Droonkarde,

whiche (Peacock like) doth jet in every streete: Neyther ashamed to shew his vyle vanytie, nor yet ever abashed, tyll hee fall downe in the channel, as the Peacocks pride is abated when he looketh towardes his feete. To conclude, they are all eyther hoggishly dronke, and then lye vomitting and belching with great griefe, and greater offence, or else they become Asses, and sluggishly consume in sleepe, that Golden tyme which is lent us to use and bestowe to the honour of God, and for our owne avayle." [94]

This zoological classification was extended and systematized somewhat by Thomas Nash sixteen years later: "Nor have we one or two kinde of drunkards onely, but eight kindes. The first is ape drunk; and he leapes, and singes, and hollowes, and daunceth for the heavens: the second is lion drunke; and he flings the pots about the house, calls his hostess whore, breakes the glasse windowes with his dagger, and is apt to quarrell with any man that speaks to him: the third is swine drunk: heavie, lumpish, and sleepie, and cries for a little more drink, and a fewe more cloathes: the fourth is sheep drunke; wise in his own conceipt, when he cannot bring foorth a right word: the fifth is mawdlen drunke; when a fellowe will weep for kindness in the midst of his ale . . . . : the sixth is Martin drunke; when a man is drunke and drinkes himselfe sober ere he stirre: the seventh is goat drunke; when, in his drunkenness, he hath no minde but on lecherie: the eighth is fox drunke—when he is craftie drunke, as manie of the Dutchmen bee, that will never bargaine but when they are drunke. All these species, and more, have I seen practiced in one companie at one sitting, when I have been permitted to remayne sober amongst them, only to note their severall humours." [95]

Robert Macnish in 1835 devoted the fourth chapter of his monograph, *The Anatomy of Drunkenness,* to a consideration of the relationship of the personality to the phenomena of intoxication: "the bodily and mental constitution of every man is not alike, and . . . . on these peculiarities depend certain differences during a paroxysm of drunkenness." [96] He describes seven varieties of intoxication: the sanguineous, the melancholy, the surly, the phlegmatic, the nervous, the choleric, and the periodical. After Macnish, possibly because of the beginning rapid development of experimental physiology and pharmacology, medical thought seems to have relinquished this point of view and the attempt to classify



FIG. 1.—Representation by means of animals of the different types of acute alcoholic intoxication; the animals shown are a wolf, a donkey, a sow, a calf, a sheep, a fox, a monkey, a bear and a goose. (From Simon: Bibliotheca Bacchica)



FIG. 2.—The four complexions and the animal into which each is transformed by alcohol; from left to right the complexions are: choleric, sanguine, phlegmatic and melancholic. (From the Kalendar and Compost of Shepherds.)

empirically the different types of reaction to alcohol fell into desuetude, or, rather, was relegated to the writers of fiction.

In one of the sketches by Boz, *Making a Night of It*,[97] Dickens has made a contribution (perhaps none the less valid because ostensibly fictional) to the study of personality and its relation to drunkenness. He traces the behavior of Mr. Thomas Potter, "sport," and Mr. Robert Smithers, "poet," through an evening of drinking to a disastrous conclusion. The beverages they consumed and the situations through which they passed were almost identical; the personalities of the protagonists and their symptoms in drunkenness were strikingly contrasted. Potter, who, sober, wanted to be known as a "fast-goer" became, under alcohol, noisy, overactive and prankish while Smithers who was "constitutionally one of the slow-goers," "three parts dull and the other dismal," went to sleep.

It might have been expected that contributions pertinent to the symptomatology of acute alcoholic intoxication would have been forthcoming from the psychoanalytic group;[98] however, in the main, the efforts of the psychoanalysts in this connection have been restricted to consideration of the part played by "instinctual" drives in the etiology of chronic alcoholism.[99, 100, 101] The possibilities for psychoanalytic interpretation of the symptoms of acute intoxication are illustrated by Defoe's anecdote of the devil tempting a young man to murder his father: "'No,' he said, 'That is unnatural.' 'Why, then,' says the devil, 'go and lie with your mother.' 'No,' says he, 'That is abominable.' 'Well, then,' says the devil, 'If you will do nothing else to oblige me, go and get drunk.' 'Aye, Aye,' says the fellow, 'I will do that.' So he went and made himself drunk as a swine; and when he was drunk he murdered his father and lay with his mother.'"[102]

The current medical classification of acute alcoholic intoxication has been developed during the past century; there are now distinguished two types of drunkenness: normal drunkenness and pathological drunkenness. The simplicity of this classification does not do justice to the complexity of the symptomatology. Largely as a response to the practical needs of forensic psychiatry unusual and widely divergent symptoms in drunkenness have been dubiously grouped together into the hypothetical syndrome, pathological intoxication.[103, 104] In the somewhat academic attempt to establish a

sharply delimited clinical entity as an autonomous disease with subvarieties and subtilties of differential diagnosis, prognosis, etc., there has been a tendency to lose sight of the dynamics of symptom formation. Although the frequent occurrence of unusual symptoms after alcohol ingestion by persons of atypical or pathological make-up has long been recognized the data available for correlating symptoms with personality are exceedingly meager.

Conclusions.

1. The varied symptomatology of acute alcoholic intoxication depends upon the inter-play of two main factors: the pharmacological action of alcohol on the several physiological systems, and the personality of the intoxicated individual with its constitutional and acquired components.

2. The pharmacological action may be modified by the dose of alcohol, the nature of the beverage and the physiological state of the organism but is ultimately dependent upon the concentration of alcohol in the tissues.

3. The study of the elements contributed by the personality to the clinical picture of drunkenness has been neglected but offers a promising field for modern psychiatric investigation.

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SOME RESULTS OBTAINED WITH THE RORSCHACH TEST, OBJECTIVELY SCORED.

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I. Introduction.

In a recent investigation, a search was made for possible variables underlying extreme differences in mental stability. A battery of psychometric tests was administered to a group of subjects, and an analysis of the results revealed the presence of at least two factors underlying the test scores. An account of the nature and interpretation of these factors is given elsewhere;[5] but since one of the tests used was the Rorschach (ink-blot) test,[6] it is the purpose of this paper to consider the results of this test separately, and to interpret them in the light of the previous work, of which it forms a part.

The Rorschach test has recently received considerable attention in psychiatric and psychological circles. Beck,[1, 2, 3] and Vernon[7] have both published excellent historical surveys and bibliographies in English, and German literature contains an extensive list of experimental reports, dealing with the technique of giving the test, establishing objective ways of scoring the responses, and determining reliable norms. Beck has given the test to groups of superior healthy adults, feebleminded and problem children, and patients in psychopathic hospitals. But only in a very general way have the results been utilized to show the variation in scores obtained with normal and abnormal individuals.

An attempt is made here to compare the results of the test when given to healthy adults with those obtained with mental hospital patients. It is not our intention to look for the intricate type-diagnoses, but rather to ascertain whether any reliable differences exist between the responses given by subjects representative of these two extremes.

II. Procedure.

(a) *Subjects.*—The subjects included 20 graduate students taking advanced work in psychology at the University of Toronto; 6 private patients, manifesting behavior which was apparently unstable, though not sufficiently so as to require hospitalization; and 17 in-patients of the Toronto Psychiatric Hospital. The 20 graduate students seemed to be superior healthy adults. The 17 hospital patients were suffering from a variety of conditions, including schizophrenia (5 cases), manic-depression (3 cases), paranoia and paranoid-reaction (2 cases), psychosis with arteriosclerosis (1 case), alcoholism (2 cases), and psychoneurosis (4 cases). These patients were selected on the basis of two criteria: (1) They had to be sufficiently cooperative to ensure a reasonable degree of reliability in the test-scores; (2) various types of abnormality were to be represented, according to the purpose of this study.

(b) *Method.*—The Rorschach test was given to each subject individually, and the standard procedure was used. It is unnecessary here to enlarge upon the details of the test, except to say that 10 symmetrical ink-blots are used, four of which are black and grey, the rest involving color in addition. The subject, seated in a good light, was presented with the pictures one at a time. The examiner, making himself as inconspicuous as possible, sat behind and to one side of the subject. The latter was asked simply what the picture might be, what it suggested. Considerable urging was utilized, but no prompting. A verbatim report of the responses was kept. No emphasis was placed upon the speed or number of responses, save that, with the 20 healthy adults, a time limit of five minutes per picture was imposed. The subjects were not warned of this, but were simply handed another picture at the expiration of the allotted time, with the comment: "Yes, and what might this one be?" Only in a very few instances was the full five-minute period utilized. No limit was imposed with the hospital patients.

The responses were scored according to the English version of the Rorschach method, advocated by Beck.[2] This method gives at least five measures for each individual: (1) The total number of responses (R); (2) the number of responses indicating a clearly perceived form or shape (F); (3) the number of responses indicating that the picture was perceived as a whole, a total configur-

ation (W); (4) the number of responses in which movement or kinæsthetic experience were of prime importance in suggesting the interpretation given (M); and (5) the number of responses which were based primarily upon the color, or in which color seemed to figure prominently (C). Responses are seldom based upon color alone. Color combines with form in various proportions which are roughly graded and scored accordingly.[2]

III. Results.

The results for the entire group of 43 subjects are shown in Table I. In this table, the columns refer to the range, mean and standard deviation of each type of response. The values referring to well-perceived form (F), whole responses (W), movement (M) and color (C) responses are given first in terms of the actual number of responses, then in terms of these numbers expressed as percentages of the total number of responses (R). This is done in order that a comparison may be made between individuals on a common basis.[1]

The composite group was then divided according to degrees of "instability"[2] shown by the subjects. This division was directed by the results of the aforementioned study, in which two factors had been isolated. In terms of these factors, the 17 hospital patients came at one end of the scale; and the 17 healthy adults at the other end were used for purposes of the comparison which follows.

Table II shows the results for these two groups separately, using the same categories as before:

It will be observed that the average total number of responses (R) is significantly greater in the "stable" group than in the "unstable" group. (The difference between the means is 37.4, the standard error of the difference being 5.1.) At first glance it

[1] In most of the researches to date, considerable attention has been given to the relative frequencies of particular types of responses; *e. g.*, the ratio of movement to color responses. This procedure is of value when the responses of a particular individual are being examined, or when relationships between corresponding ratios in different individuals are sought. Since our purpose here is mainly confined to a comparison of the responses of "stable" with those of "unstable" subjects, the percentage values seem to be most adequate.

[2] The term "instability" is used provisionally, until the meaning of the factors isolated becomes more definite.

would appear that the F, W, M and C responses were also different in the two groups. But a comparison based upon these values expressed as percentages of R shows that, far from being different, the groups are remarkably similar. Thus, although in terms of the average number of W responses the " stable " group are superior to

TABLE I.

RORSCHACH RESULTS WITH THE COMPOSITE GROUP.
(43 Cases.)

	Range	Mean	Standard deviation
Total no. of response.....R.	5–93	39.8	24.8
Well-perceived form .....F.	3–55	22.1	14.4
F as per cent of R.....	31.4–81.8	56.8	24.5
Wholes .....W.	0–30	10.4	7.4
W as per cent of R.....	0–80	30.7	20.3
Movement .....M.	0–12	4.1	3.5
M as per cent of R.....	0–28	9.2	7.5
Color .....C.	0–22.5	8.8	5.1
C as per cent of R.....	2.4–34.0	19.5	7.7

TABLE II.

RORSCHACH RESULTS WITH " STABLE " AND WITH " UNSTABLE " SUBJECTS.
(34 Cases in All.)

	"Stable"			"Unstable"		
	Range	Mean	S.D.	Range	Mean	S.D.
R	32–92	58.8	18.8	5–36	21.4	9.5
F	14–55	34.8	13.0	3–17	12.5	6.2
F as % R..	41.9–75.8	58.5	8.8	31.4–81.8	54.5	14.7
W	3–30	13.9	7.8	0–12	5.3	3.0
W as % R..	9.0–66.5	26.6	24.5	0–47.4	27.0	15.7
M	2–12	5.4	3.3	0–4	1.5	1.5
M as % R..	2.3–25.6	8.9	6.2	0–26.3	7.2	7.8
C	4.5–22.5	11.9	5.3	0.5– 9.0	4.6	2.9
C as % R..	3.1–29.5	18.9	7.7	9.1–28.4	19.5	6.4

the " unstable " group by 13.9 to 5.3, when these responses are changed to percentages, and averaged, the two groups are approximately equal (26.6, 27.0). From this table of results, the only significant factor in differentiating the groups is the total number of responses (R); for it is obvious that whatever ratios between different types of response are considered, they are almost identical for the two groups.

Beck [3] has shown the importance of considering the types of response for each picture separately. Some pictures, he finds, tend to bring out more W responses than others, and hence the scoring procedure should involve the weighting of the responses according to the picture concerned. While our interest did not seem to demand so detailed a scoring method, particularly since, as shown above, the total number of responses proved to be significant rather than the type of response, Beck's suggestion led to an analysis of the responses to the pictures individually.

A measure of variability in the number of responses given to the separate pictures was obtained as follows: For each subject, the differences in R for the various pictures were summed arithmetically. Thus the difference between R on picture 1 and R on picture 2, was added to the difference R 2 minus R 3, and so on for the 10 pictures. The resulting number was divided by the individual's average R.

These values, when averaged for the "stable" and "unstable" groups, showed that the "unstable" subjects were definitely more variable than the "stable" subjects. The figures were, for the "unstable" group, 5.8 (S.D. 1.9); for the "stable" group, 3.3 (S.D. 0.95). The difference between the means is significant, being 2.5, with a standard error of 0.52.

IV. Summary and Discussion of Results.

Two main results have emerged from our data: (a) There is a significant difference between the average number of responses on the Rorschach test when given to "stable" subjects, and when given to "unstable" subjects. (b) "Unstable" subjects show greater variability from picture to picture in the number of responses given than do "stable" subjects. Both these results involve methods of scoring that are quite objective.

In the main study of which this formed a part, the two factors which seemed to underlie the results of a battery of psychometric tests, and which differentiated "stable" from "unstable" subjects to a fairly marked degree, were tentatively interpreted as "objectivity" and "fluency or motility of response" respectively. As a Rorschach score in that investigation, the number of responses (R) was taken; and this variable showed itself to be weighted very significantly with the second factor ("fluency"). The first factor ap-

peared in those tests involving fluctuation in efficiency, variability of response, etc. So that the two objective measures on the Rorschach test, which gave us the results quoted above, may possibly be closely related to the factors "fluency" and "objectivity" respectively. Further research is, of course, necessary before we can regard this as more than a tentative suggestion.

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THE RELATIONSHIP BETWEEN VARIOUS EMOTIONAL DISTURBANCES AND THE SUGAR CONTENT OF THE BLOOD.*

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The experimental work on emotional reactions has indicated that the current "objective" psychological measures cannot distinguish between specific kinds of emotions. The introspective studies of emotions attempting to define and describe specific states have also arrived at conflicting results. Harlow and Stagner [1] have pointed out in their recent review of the psychology of feelings and emotions that "the varying lines of evidence force us to the conclusion that emotions as patterns of response do not exist." On the other hand, it has been shown that definite bodily changes occur consistently in animals which are stimulated to the point of violent activity of the sort which is generally recognized among human beings as emotional behavior. The experiments of Cannon,[2] which have shown that a rise in blood sugar occurs in cats after they have displayed evidence of being markedly disturbed by a barking dog or by prolonged restraint, have been confirmed by many other workers.[3, 4] These disturbances are sufficiently severe to exhaust the animals to a point where they are indifferent to any ordinary subsequent stimuli. Efforts to discover whether a rise in the sugar content of the blood of man occurs after he has been disturbed sufficiently to manifest behavior similar to that of the cats has resulted in conflicting observations. There are a number of reasons for this discrepancy in results. It has been impossible to produce, in the laboratory of any university, as severe a disturbance in man

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as was manifested by the animals after being restrained for a number of hours or being excited by another animal. The only situation, under partially controlled conditions, in which emotional displays in man as violent as those in the experimental animals may be found is on the wards of a psychiatric hospital. For this reason most of the studies of blood sugar in relation to emotional states have been done on patients with some form of mental disease. Observations on material of this sort cannot be taken as evidence of the changes which occur in people without mental disease. A few workers have attempted to measure the blood sugar content in normal people before and after various kinds of experiences which appeared to produce emotional reactions.

The effect of important school examinations on the sugar content of the blood of medical students and nurses has been studied. MacLeod,[5] found that what he describes as a difficult examination produced no glycosuria in medical students, a result contrary to the observations of Cannon and Folin.[2] Adolph and Wang,[6] observed no change in the blood sugar of 76 Chinese medical students after examinations. They remark that the examinations lasted three hours and that the sugar may have been high for awhile, but had returned to the original level when the samples of blood were taken. However, glycosuria was found in only one student. We do not intend to consider the problem of glycosuria in this paper, but wish to point out that most of the evidence in favor of hyperglycemia in man is indirectly derived from the observation of glycosuria in students following examinations, and also in man after playing in, or watching, football games.

Maranon [7] reported the occurrence of hyperglycemia with some values as high as 150-200 mgs. per cent in eight students and two instructors of army aviation, just before and after flight. His observations would have been more conclusive if he had noted the time and the interval after meals when the blood samples were taken. Folin and Berglund, 1925,[8] described one student with a hyperglycemia of 210 mgs. per cent which seemed to be related to his upset emotional state.

Edwards, Dill and Richards, 1931,[9] have followed the blood sugar in 11 college athletes before and after varying periods of play in important football contests. The range before the play began was from 100-117 mgs. per cent including eight varsity players and

three substitutes. One player withdrawn from the game because of injury after only three plays had a blood sugar of 115 mgs. per cent. Three men who had played five minutes had values of 106, 130 and 143 mgs. per cent. In the case of 16 men who played about half the game, values ranged from 117 to 224 mgs. per cent. They also found evidence of a slight decrease from the high levels when the men continued playing to the end of the game. Results of a similar character were found among players in preparatory school football games. Many of the players with high blood sugar including one of 182 mgs. per cent did not have a glycosuria. Yet a few men who had played an entire game and who did not have a hyperglycemia at the end of the game showed a glycosuria. These authors also studied the effects of exercise without emotional excitement. They found, as have other workers, that there is only a slight rise in blood sugar when strenuous exercise is begun. When the exercise is continued beyond 15 minutes there is a gradual decrease in sugar. In summary they state that: "Hyperglycemia is uncommon in exercise with little or no emotional stress, but common in exercise with emotional stress on the football field. Before the game begins the blood sugar is normal and it appears to reach its peak when the game is half over. At the end of the game the blood sugar may be normal while the urine sugar is high, indicating that the blood sugar has passed through a maximum. Inferentially if exercise were to continue (as in marathon races) hypoglycemia might result."

Van der Sheer [10] studied the effects of experimentally induced emotional reactions in a group of nurses. In the majority of subjects a rise in blood sugar was noted, but in most instances it amounted to only 10-15 mgs. per cent. In some subjects there was a slight fall. The emotional reactions described by this author appear to have been moderate in degree and not comparable with those occurring in football players.

Bowman and Kasanin, 1929,[11] have adequately summarized the literature on the effects of emotional reactions on the sugar content of the blood in patients with mental disease. They have also reported in detail their own studies of 295 patients and have reached the following conclusions: "In persons with mental disease the blood sugar during fasting is usually within normal limits; there is no correlation between the mood of the patient and the

height of the blood sugar; various other factors might account for a great many instances of high blood sugar values. It seems probable that physical conditions, particularly fever, are more concerned with the high sugar values found in our study than is the emotional state of the patient."

Whitehorn [12] has recently reported on a study similar to that of Bowman and Kasanin in which he has found no elevation of blood sugar in association with emotional disturbances in patients with mental disease.

At present we have quite adequate evidence that severe disturbances of behavior in animals which, when they occur in human beings, are called emotional, are accompanied by a rise in the blood sugar. In the case of human beings without mental disease the evidence is inconclusive. Slight emotional reactions such as those found in students in relation to school examinations rarely produce a hyperglycemia. The more severe emotional disturbances similar to those aroused in the players in football games and participants in aviation appear to be associated with a rise in blood sugar.

In an attempt to obtain more information as to the effect of severe emotional disturbances in man we have undertaken the following study.

Material and Methods.

In view of the difficulty in differentiating various kinds of emotional disturbances we have adopted the simplest possible method of describing these reactions. We have used the term "emotional disturbance" to describe the condition of a person in whom a number of outward manifestations commonly accepted as indications of emotional turmoil were present. We have sought particularly such features as contortions of the face (suggestive of fear or rage, or other strong emotion), marked pallor or redness and engorgement of superficial vessels of the face, twitching of mouth, tremor of hands or of whole body, sweating, irregularity of respiration and changes in the rate of the pulse. When the majority of these features were present and marked in degree, we have used the term severe emotional disturbance. For only two or three of these manifestations in a less severe form the term moderate emotional disturbance has been adopted. Lesser degrees of emotional disturbance have been designated as slight. In addition to

these external observations we have obtained a brief report of each subject's introspective experiences.

Group 1.—The most severe emotional disturbances were found among the patients and their relatives coming to the accident floor of the hospital, following automobile accidents or other kinds of exciting experiences. No patients were included in this group who had eaten food within three hours of the time that the blood was taken. Evidence of the previous ingestion of alcohol, or of some disease, and any injuries other than minor bruises or scratches eliminated a subject. The first blood sample was drawn within two hours of the exciting experience. A second sample of blood was taken within the next few days when the subject was not emotionally disturbed, at the same hour in the day and at the same interval after the previous meal as had obtained for the first sample.

Group 2.—Patients who were being prepared for major operations were also studied. It was found that these people, because of their confidence in the ability of the surgeons and the soothing effects of amytal which was administered the night before the operation, displayed little evidence of any emotional disturbance. Two patients sent in from the dispensary for emergency operations constituted exceptions to this rule.

Group 3.—Control studies. Patients coming to the accident floor to have dressings changed or for minor injuries who displayed little evidence of emotional disturbance were used as controls for group 1. Slight emotional disturbances were experimentally produced in subjects without mental disease, when they were in the post-absorptive state. Various methods of inducing these emotional states were tried. Shooting a large revolver produced the most marked display of emotion in women who had no previous experience with firearms. A moving picture Frankenstein, which tended to produce subjective experiences of horror and pity, was utilized.

Group 4.—Patients with various kinds of mental disease, showing manic excitement, agitated depression, acute attacks of anxiety, violent outbursts of temper and states of panic were studied over a period of months and samples of blood were obtained when they were relatively calm in order that they might be compared with samples drawn during periods of severe emotional disturbance.

Technique.

Four c. c. samples of blood were taken from an arm vein and run into a test tube or bottle containing approximately 12 mgs. of potassium oxalate. The tubes were stoppered at once and the analyses were begun within an hour of the time the sample had been taken.

The Somogyi method of zinc sulfate precipitation was used because it gives a filtrate that is relatively free of non-glucose reducing substances. The reducing substances in this filtrate were then measured by Benedict's copper method of 1925. Two c. c. of whole blood were used for each determination and the colorimeter measurements were made in duplicate. The normal post-absorptive value for the glucose content of the blood as determined by this technique ranges between 65 and 95 mgs. per cent. Theoretical amounts of glucose were measured with a degree of accuracy of 3-4 per cent. We have compared the results obtained by this method with those of the Folin-Malmros technique on the same blood sample. The former gives values which are 10-15 mgs. per cent lower than those obtained with the latter technique.

Observations.

Group 1.—The studies on the people showing evidences of severe or moderate degrees of emotional disturbance are summarized in Table I. The people in the automobile accidents manifested marked individual variations in the manner in which they experienced the accidents. The accident which severely frightened the girl B. C. disturbed her sister to a much less extent. The boy friend who was driving the car received a severe head injury and was not a suitable subject. The other boy friend appeared a little irritated and disgusted and his blood sugar was only 86 mgs. per cent. A similar difference may be noted between E. W. and L. W. Three college students who came to the hospital for treatment of minor lacerations after an automobile accident showed little emotional reaction and no elevation in the sugar content of their blood. An even more striking discrepancy was observed in the husband of the woman that J. V. brought to the hospital. The husband was not a spectator at the suicide as J. V. had been, but he expressed grief at the loss of his wife and wept a good deal, when told in the hospi-

tal that she was dead. None of our other criteria of emotional disturbances were present. The sugar content of his blood was only 96 mgs. per cent. The changes occurring in the husbands S. A., W. G., and D. O. form a striking contrast to this man.

It was observed that the majority of the people who came to the accident floor showed little evidence of emotional disturbance. Blood was obtained from 18 of the people manifesting slight degrees of emotional disturbance. The sugar content of these blood samples ranged between 74 and 98 mgs. per cent.

Group 2.—Samples of blood were taken from the surgical patients just before they were given morphine on the morning that they knew that they were to undergo a surgical operation. These patients had received amytal or luminal the night before and they all had slept well and were still a little drowsy. None of our criteria of moderate or severe emotional disturbance were present in these patients. Several reported that they were a little worried or frightened, but they all expressed great confidence in their surgeons. The sugar content of these samples ranged from 76-84 mgs. per cent.

The results were different in two women patients who had walked into the hospital for what was thought to be the removal of a small non-malignant tumor of the breast.

Patient M. D., a well-nourished woman of 48, who was in post-absorptive state, had a small tumor of the breast removed under local anesthesia between 8.30 and 9.10 a. m. She took the operation quite calmly. The sugar content of the blood sample taken at 9.30 was 84 mgs. per cent. At 10 o'clock she was told that the small tumor was malignant and that she should have her breast removed at once. The woman wept and began to tremble all over and she insisted that the operation would kill her and that it was no use to go through it because she would die of cancer anyhow. It required an hour of persuasion on the part of her husband to obtain her consent for the operation. A blood sample was obtained just before the administration of a sedative; it showed a sugar content of 103 mgs. per cent.

A second patient, a woman of 44, under similar circumstances reacted in much the same manner as described above. The blood sugar in this woman rose from 78 to 112 mgs. per cent.

Group 3.—Control studies. Samples of blood were taken at random from 10 patients coming to the accident floor for minor injuries, or to have their dressings changed, who showed no evidence of even a slight emotional disturbance. The same precautions

were used with regard to previous food and the ingestion of alcohol as had been exerted in the selection of the emotionally disturbed patients. The sugar content of the blood of these patients ranged between 70 and 92 mgs. per cent.

Experimentally induced emotional reactions. Six people who had had no previous experience with firearms were persuaded to load and shoot a large revolver. Only two of these showed external evidence of emotional disturbance. C. R. had a post-absorptive blood sugar content of 78 mgs. per cent. Five minutes after shooting the revolver the sugar content had risen to 85 mgs. per cent. M. B. developed about the same amount of tremor and fluctuation in pulse and respiration and expressed a feeling of apprehension as had C. R. on firing the revolver, but there was no change in the sugar content of her blood.

Effects of viewing the moving picture Frankenstein:

Subject.	Blood sugar mgs. % Before.	After.	Emotional state during picture.
P. S. Age 25—F.....	85	78	Slight external manifestations. Expressed some feelings of horror and sympathy.
V. M. Age 23—F.....	87	91	Approximately as above.
E. G. Age 34—M.....	80	79	No external manifestations. Subjective experience of mild amusement.
R. S. Age 36—M.....	77	77	Similar to E. G.

Group 4.—The determinations of the sugar content of the blood of 22 patients in the post-absorptive state showing various forms of severe manic excitement or of agitation, apprehension and depression did not reveal any evidence of hyperglycemia. As findings of this nature have been described for a large number of patients by both Bowman and Whitehorn it is unnecessary to report our figures in detail. It does seem worth while to report repeated observations on individual patients when in a calm state and when in an acute state of anger, fear or other forms of emotional excitement or extreme apprehension, agitation and depression.

Patient V. R., a male, age 26, was found on physical examination to be well developed and nourished and in good physical condition. He gave a history of a mild depression of two months duration when 20 years old. At the age of 24 the patient began to fear that he might die and then gradually developed

a number of gastrointestinal symptoms, belching of gas, heart burn, general epigastric pain, loss of appetite, etc. He lost energy and weight and gave up work. Depression and recurrent attacks of vague but intense anxiety soon became predominant. After six to seven months he began to regain his energy and weight and to make arrangements to return to work, but the attacks of anxiety and fear of death persisted. By this time the patient was well enough to be at home, but he continued to come to the dispensary about twice a week.

On April 27, 1933, the patient came to the clinic in the post-absorptive state. He was moderately depressed, but not troubled by apprehension and enxiety. A blood sample taken at 9.30 a. m. showed a sugar content of 85 mgs. per cent.

On May 25, 1933, the patient came to the clinic in the post-absorptive state. His depression was practically gone and he was quite optimistic as to eventual recovery. The blood sugar content was 82 mgs. per cent.

On June 13, 1933, the patient had been working but had been troubled by attacks of anxiety, fear that he would drop dead. When the blood sample was taken at 3 p. m. ($2\frac{1}{4}$ hours after lunch) he was recovering from an attack which he said had lasted an hour. The blood sugar was 81 mgs. per cent.

On August 8, 1933, the patient had been working but was complaining of severe attacks of fear on previous day. He had not had lunch. He was calm and moderately cheerful when his blood was taken at 12.30 p. m. His blood sugar was 78 mgs. per cent.

On December 1, 1933, at 3.15 p. m., the patient came to the clinic complaining of fear of death, pain over the heart and the feeling that he would drop dead at any moment. He had been feeling this way for about half an hour. There were present many external manifestations of a severe emotional disturbance such as a marked pallor of the face, "cold" sweat on palms of hands and under axillæ, twitching of the mouth, apprehensive expression on face and tremor of the hands. On entering the office his pulse was 130 per minute. After lying flat on a bed for 15 minutes it was 100. A blood sample was taken at 3.30 p. m. and showed a glucose content of 79 mgs. per cent. The patient continued to lie on the bed and was reassured and some of his troubles were discussed. By 4 p. m. the fear and apprehension had practically left him and his pulse rate was 90 per minute. At 4.30 p. m. the patient was calm again, had regained his courage, said that he no longer felt afraid and that he was prepared to go to the newspaper office to work. His blood sugar at this moment was 78 mgs. per cent.

L. I., a girl of 18, was followed in the clinic for more than three years, and during four months of this time she was a ward patient. Her outstanding difficulty was due to frequent fluctuations in mood of short duration (a few hours to two to three days). Between these periods she was a cheerful and agreeable person. During a depressed period she was sulky, wept and was sometimes mute. In the moderately hyperactive state she was irritable, and often flew into violent fits of rage.

The blood sugar content when she was in a cheerful and calm condition ranged between 84 and 88 mgs. per cent. The highest blood sugar that was observed either during a depressed state or during a fit of rage was in a blood sample taken just after she had broken up some furniture in a fit of rage, and

a number of orderlies and nurses had forcibly placed her in a room in the ward for disturbed patients. At this time her face was flushed, her mouth twitched and there was a general tremor of her body. Her pulse rate was 120-130 per minute and respirations were 30 per minute. It was necessary to restrain her in order to obtain the sample. She stated that she was in a rage and was going to kill everybody. The blood sugar content was 89 mgs. per cent.

Patient A. N., an English woman of 38, had suffered a depression of two months duration about seven years previous to the illness which brought her to the psychiatric clinic. The first symptoms of worry, insomnia and lack of energy, had begun after the birth of her last child eight months before her admission to the clinic. During the period of six months in this hospital she was usually underactive, depressed and retarded. But there were frequent spells of agitation, fear and crying which alternated with periods when she was only moderately depressed and able to take part in occupational therapy which at times she appeared to enjoy. Measurement of blood sugar at least three hours after meals when she was working in occupational therapy and only moderately depressed showed levels of 94, 82 and 85 mgs. per cent. Samples of blood taken when she was conspicuously agitated and apprehensive and displayed a tremor of the hands revealed sugar contents of 74, 91, 82 and 54 mgs. per cent.

A study of five other patients displaying clear-cut syndromes of agitation and depression similar to patient A. N. also showed no rise in blood sugar content during the exacerbations of agitation and apprehension.

We have also followed the blood sugar in four manic-depressive patients through periods alternating between hypomania and violent manic excitement. The sugar content of the blood showed no tendency to be higher even in the beginning of states of manic excitement which were associated with strenuous muscular activity than it was when the patients were mildly hypomanic.

Patient McN., a girl of 18, had been a difficult child who had usually reacted with temper tantrums when she could not do as she pleased. An unsatisfactory love affair had coincided with the patient's developing daily attacks of vomiting. On admission to the hospital she refused to eat or to permit any examinations. After a time it was possible to get a little cooperation on her part, and she finally consented to a vaginal examination because she actually feared that she was pregnant. This examination produced many of the manifestations of a severe emotional disturbance such as contortion of face, crying, pallor, a tremor of extremities, an elevation of the pulse rate to 110 and profuse sweating. The blood sugar content before the examination was 78 mgs. per cent and 10 minutes afterward it was 81 mgs. per cent. The fasting sugar content on eight examinations was later found to be between 67 mgs. per cent and 85 mgs. per cent. Subsequently, the patient developed violent temper tantrums at a time

that was more than two hours, after the previous meal. During the first such episode the blood sugar content was 87 mgs. per cent and on the second 82 mgs. per cent.

We also have studied in a similar manner eight patients with schizophrenia and have not found an elevation in their blood sugar during or after the most extreme forms of panic or severe forms of catatonic excitement.

Discussion.

Although it is not possible to differentiate clearly the various kinds of emotional behavior it is possible to recognize the external manifestations which are commonly associated in human beings with intense inner experiences which if introspective reports are elicited are variously described as fear, anger, horror, grief, pain, etc.

When these external manifestations are produced in animals numerous changes occur in the tissues of the animals. That a rise in blood sugar occurs under these circumstances has been repeatedly demonstrated.

The studies which we have made on 24 subjects, without mental disease, who have presented the external manifestations of and given an introspective report of severe emotional disturbances indicate that there is also a rise in blood sugar in man under these conditions (Table I). Our observations on the subjects in groups

TABLE I.

The Sugar Content of the Blood and the Pulse Rate of Patients or their Relatives During Emotional Disturbances; and in Calm State a Number of Days Later.

Subject.	Degree of emotional disturbance.	Disturbed state. Pulse per min.	Disturbed state. Blood sugar mgs. %.	Calm state. Pulse per min.	Calm state. Blood sugar mgs. %.
A. P. Age 9—M. Slightly injured finger. Frightened by hospital.	Severe	90	108	80	78
F. C. Age 11—M. Knocked down by auto. Bruises. Fear and pain	Severe	110	150	84	68
T. K. Age 14—M. Knocked down. Bruised only. Frightened.....	Severe	100	161	86	85

TABLE I.—CONTINUED.

Subject.	Degree of emotional disturbance.	Disturbed state.		Calm state.	
		Pulse per min.	Blood sugar mgs. %	Pulse per min.	Blood sugar mgs. %
G. L. Age 15—M. Run over by truck. No fracture. Fear, anger	Moderate	82	124	76	82
E. S. Age 17—M. Hit by auto. Bruised. Frightened	Severe	100	183	88	90
J. D. Age 26—Car turned over. Only bruises. Fear, pain	Severe	106	106	84	87
A. J. Age 28—F. Attempted suicide. Fear of boy friend. Stomach washed out. No injury	Moderate	120–150	91	84	74
B. C. Age 21—F. Car turned over. Bruises only. Fright marked. Angry	Severe	120	113	86	76
E. C. Age 23—F. Sister of above and in accident. More angry than frightened	Moderate	105	85	90	70
E. W. Age 25—M. Car ran off road at high speed. Bruises. Little fear	Moderate	80	91	72	82
L. W. Age 56—F. Mother of above and in same accident. Fear	Moderate	92	94	82	72
I. J. Age 28—F. Bruises and lacerations. Fear and anger	Severe	120	157	92	90
J. F. Age 47—M. Slight laceration of scalp and bruises. Fear.	Moderate	80	98	65	82
R. A. Age 19—M. Attempted murder and suicide. About to be taken by police. No injury. Fear, remorse, anger	Moderate	90–100	100	68	71
P. S. Age 48—M. In fight. Brought in by policeman. Anger, fear	Moderate	130	106	75	84
A. S. Age 6—F. Hit by auto. Slight bruises. Scared	Severe	110	107	88	75
K. W. Age 24—M. Auto accident. Slight bruises. Scared	Severe	106	142	64	77

TABLE I.—CONTINUED.

Subject.	Degree of emotional disturbance.	Disturbed state. Pulse per min.	Disturbed state. Blood sugar mgs. %	Calm state. Pulse per min.	Calm state. Blood sugar mgs. %
*A. D. Age 29—M. Auto accident. No bruises. Scared, angry	Severe	94	138	78	81
D. S. Age 32—M. Auto accident. A few scratches. Fear	Moderate	102	132	82	86
S. A. Age 32—M. Called to hospital to see wife who had been seriously injured in accident. Grief, fear	Moderate	117	104	78	84
J. V. Age 45—M. Had seen cousin jump from 3rd story of a building. Blood taken while his cousin was being examined by doctors in the accident ward. Said he had been frightened. Weeping	Severe	84	240	80	91
W. G. Age 25—M. Wife brought to hospital for delivery of baby. Husband weeping and was afraid wife would die	Severe	116	136	76	94
G. R. Age 14—M. Hit by automobile. Only minor bruises. Crying, trembling. Said he was scared.	Severe	140	110	72	85
D. O. Age 22—M. Wife being delivered of first baby. Worried. Afraid that wife might die	Severe	68	119	70	89

SUMARY OF TABLE I.

In all of the subjects the glucose content of the blood was higher in the disturbed state than in the calm state.

Maximum difference mgs. %	Minimum difference mgs. %	Average difference mgs. %
148	9	43

The pulse rate is more than 10 beats per minute higher in the disturbed state than the calm state in all but two subjects.

* Blood taken four hours after accident.

1, 2 and 3 demonstrate that a slight degree of emotional disturbance is rarely accompanied by a rise in blood sugar that is sufficient in amount to be beyond the limits of error of the methods for measuring blood sugar. These observations explain Van der Scheer's experiments which involved only slight emotional disturbances, and as a result the changes in blood sugar were rarely beyond the limits of normal variation.

The largely negative results obtained by Wittkower in his study of surgical patients are in agreement with our own observations on similar patients.

The only "normal" subjects in whom we could consistently find a substantial elevation in the sugar of the blood were those who had been through profoundly disturbing experiences which aroused a genuine fear of death or other catastrophe either for the individuals themselves or for a person whom they loved. The resulting emotional disturbances were extremely severe and produced marked degrees of tremor of the body, twitching of the mouth, pallor or flushing, sweating and disturbances of pulse rate and respiration. The husband, J. V., whose wife had committed suicide, stated that he was emotionally upset and wept, but there was little tremor, and the sugar content of his blood was only 96 mgs. per cent. On the basis of our experience with the other profoundly upset subjects we have suspected this man of not feeling as sorry about the suicide of his wife as his actions and statements might have led us to believe. If we were to study a larger series of subjects we would probably find other actors whose blood sugar would not rise in association with dramatic external displays of emotional excitement.

When the manifestations of a severe emotional disturbance appear in patients with manic-depressive psychosis, with schizophrenia, or with psychopathic personalities, an elevation of the sugar content of the blood above the normal level has rarely been observed. We have taken samples of blood from 32 patients with mental disorders at times when they have given introspective descriptions of and showed the external manifestations of severe emotional disturbances and have not found elevations in the sugar content which were beyond 98 mgs. per cent. These results are in agreement with those of Bowman and Kasanin, and of Whitehorn. Some observers have suggested that the chronicity of these emo-

tional disturbances might account for the absence of hyperglycemia. This explanation is not valid because Bowman and Kasanin and later Whitehorn, have shown that even acute emotional disturbances in patients with mental disorders are not accompanied by a rise in the sugar content of the blood. We have presented the observations in patients V. R., A. N., McN., and L. I., as illustrative examples of this point.

The subjects without psychosis who had suffered severe emotional disturbances appeared exhausted by their experience and it would have been extremely difficult for them to have responded again to even a catastrophic situation. In our patients with mental disorders the situation is different. Usually they can put on one emotional display after another with little evidence of exhaustion.

The failure of the sugar in the blood to rise in association with apparently severe emotional disturbances in patients with mental disease indicates that these reactions must be qualitatively different from the externally similar disturbances in people without mental disease.

We can only speculate as to the extent and character of this difference. The patients with psychopathic personalities with hysterical manifestations may well be actors who can play a dramatic rôle without disturbing or taxing their metabolic reserves. In the case of the manic-depressive the situation is probably different, but we do not know enough to even postulate where the seat of the disorder may lie. Yet the fact that they do not mobilize their carbohydrate to any marked extent may partially explain why it is possible for them to manifest the most extreme emotional disturbances at frequent intervals or continuously for long periods of time without becoming completely exhausted.

Conclusions.

1. Emotional disturbances which are severe in character in people free from mental disease are accompanied by a hyperglycemia.

2. Slight emotional disturbances such as those brought about by the prospect of a surgical operation or produced experimentally in the laboratory are rarely associated with a hyperglycemia.

3. Severe emotional disturbances in patients with mental disorders, even when they appear to be as acute and severe as those in the normal group, are not accompanied by a hyperglycemia.

4. The blood sugar content in patients ailing from pathological emotional states is sufficiently different from that found in normal persons under acute emotional stress to indicate the presence of some qualitative difference in respect to their underlying metabolic processes.

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THE METEOROLOGIC FACTORS IN MENTAL DISEASES.*

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The effect of variations in the meteorologic environment upon the reactions and activities of the human organism has been noted in previous publications,[1] but since each article was confined to a particular phase of this relationship the attention was directed to a part, rather than to the relationship as a whole. It is believed that a representation of the subject in general rather than in specific terms is now in order so that the material which has been obtained so far may be condensed. This seems rather the more imperative because of the complexity of the problem, and the relative newness of the subject. Further, re-emphasis is needed because almost all readers have some popular ideas on this subject, and they are hence prone to supply their own terms, and to draw their deductions from incomplete observations. Because of this latter tendency the need of scientific terminology is apparent in order to properly understand and evaluate the findings.

Prior to the present approach to the rôle of the meteorologic factors in mental diseases investigators had spent a great deal of time and energy in the study of the relationship between human activity, and such general factors as geographic location, climate, weather, etc.[2] However, as these factors comprise only a part of the entire meteorologic environment the studies were generally inconclusive. Regarded in the light of the present study, it is easily seen that lack of agreement between individual investigators may be ascribed to the partial consideration of the complete picture.

It cannot be too strongly stressed that the climate, weather, geography, etc., are only a part of the complete meteorological picture. In the following pages, we deal with the meteorological environment or state, and no reference is intended to the other factors unless specific mention is made at the time. This distinction is quite necessary, because the difficulty most people encounter in evaluating the effects of variable conditions, lies chiefly in that they are prone to use the term "meteorological states" in the same

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manner as they use that of "weather"—as if they were synonomous expressions. A reason for this may be found possibly in the acuteness and awareness with which we observe changes in weather and climate—that is, we are all aware of definite changes in temperature. We are not aware however of the underlying factors which constitute such a thing as the "weather." This paper will discuss those underlying factors, such as the primary changes occurring in barometric pressure, temperature, wind, humidity, etc. The popular terminology of "storms" will not be considered as such.*

Effects of Meteorological States on Oxygen Concentrations.

It is believed that the various findings that have been discussed depend primarily upon variations in the concentration of oxygen in the surrounding atmosphere. In an earlier paper, calculations were made showing that the amount of oxygen present in the air was conditioned to a large extent by the external temperature and the barometric pressure. Thus at sea level, 22.4 liters of air at a pressure of 760 mm. and at zero degree centigrade will contain

* By a storm is meant rain, or a snow storm, with attendant changes in temperature. This does not in any way connote that a meteorological storm preceded the visible storm. In meteorology a storm means a period of rapid changes in barometric pressure, temperature, occurring singly or together. An instance of one of the pitfalls that results from a lack of distinction between weather and meteorological states is commonly encountered among those engaged in the care of insane patients. Attendants in close contact with numbers of such patients are in the habit of forecasting weather changes, just as does the official weather forecaster. However, in the former instance the forecast is based upon experience derived in the past work, while the latter makes his predictions from studying changes in the meteorological states, measured by scientific instruments. Often both the attendants and the weather man make mistakes, but equally often they are both correct. What each did, however, was to predict changes which follow certain events. In the case of the attendant an increase in the number of disturbed patients usually heralds the approach of a change in the weather; and in the case of the weather bureau, changes in pressure and temperature herald the storm. If one takes the trouble to consult the meteorological states at the time of the forecast by either, sufficient evidence will be found to predict a change in the weather. The mistakes occur in that frequently meteorological storms are not followed by weather changes of like severity, and likewise severe weather changes may not be followed by severe meteorological changes.

6.1 grams of oxygen. This calculation is based upon the percentage composition of air at that altitude. The weight of oxygen is arrived at from the weight of the 22.4 liters of air. Variations in the concentration of oxygen may easily be calculated by the application of the gas laws of Boyle and Charles. These two laws although well understood by medical men are nevertheless lost sight of in the general practice of medicine. According to these laws, increasing the temperature of a gas, and decreasing the pressure result in a lessening of the concentration of the gas. Conversely decreasing the temperature and increasing the pressure bring about an increase in the concentration per unit volume. These laws are based upon exact measurements and are universally accepted. Why must we consider only gases in closed containers, and forget that the atmosphere is subject to the same laws? For purposes of demonstration, the same calculations may be used. Thus at sea level, but with an increase of the pressure to 780 mm. and a decrease of the temperature to −20 degrees centigrade, 22.4 liters of air will contain 6.8 grams of oxygen. Introducing the opposite conditions, namely, the pressure decreased to 700 mm. and the temperature increased to 40 degrees centigrade, the amount of oxygen per 22.4 liters will now be 4.9 grams. The difference between the two states is then 1.9 grams of oxygen. If expressed as percentage difference, the variation amounts to 28 per cent.

It is now readily seen that the amount of oxygen is subject to wide variations, and moreover the extent of the changes in the concentration is determined to a large degree by the pressure and temperature. Such changes in pressure and temperature as used in these calculations are not at all uncommon. In our terms when the pressure increases and the temperature decreases, the state is termed a "polar front," while the latter condition (pressure decrease and temperature increase), is known as a "tropical front."

The problem is to apply these facts to actual medicine and physiology. There is no question but that changes in altitude produce profound physiological changes, which are known and are explained on the basis of oxygen deficiency. Increased altitude is nothing more than a way of decreasing the barometric pressure, because the supporting column of air is less, and decreasing the pressure is nothing more than lessening the oxygen concentration. Thus the changes of a physiological nature which are known to take

place may just as well be explained by decreased atmospheric pressures.

Experiments [3] have also been carried out on animals living under reduced pressures. The sum total is that all medical men agree that changes of a physiological, not pathological, nature occur at increased altitudes or decreased atmospheric pressures. But why is it necessary to place a person on top of a mountain in order to explain the changes as being due to lessened concentration of oxygen? Why cannot the same individual undergo the same changes if the oxygen concentration in which he lives be suddenly decreased by approximately 30 per cent?

From our studies, we know that there exist states of relative anoxemia, and these states are associated with periods of decreased atmospheric pressures and increased temperatures. Likewise, there are times when the oxygen saturation is greater, and these periods are associated with increased pressure and decreased temperature.

The physiological mechanism may be explained as follows: The relative deficiency of oxygen leads to more rapid breathing, with a resultant better elimination of carbon dioxide, and a resultant state of relative alkalosis, change in pH, and ionic shifts. The opposite state is represented by a shift to the acid side.*

Since the meteorological environment is a kaleidoscopic affair, some changes may not be reflected in the blood chemistry, other

* The condition of alkalosis can easily be reproduced in the laboratory by forced breathing, and this may be carried as far as a state of transient coma.

Although the evidence indicates that the oxygen concentration is one of the prime factors, there are others that also play some part. Thus, the degree of oxygen saturation of the hemoglobin is also determined by factors other than the variations in the oxygen concentration in the atmosphere. These factors are wind velocity, degree of ionization, sunshine, and humidity. We know that the oxyhemoglobin in the blood varies from 92-99 per cent in arterial blood and from 60-80 per cent in venous blood. The oxygen concentration changes were used in order to account for these changes, and seem to play the most important part. It is not stated that there actually occurs a deficiency of oxygen, but when meteorological conditions change the oxygen concentration, there occur compensatory changes in the physiologic and chemical reactions which prevent almost wholly actual oxygen deficiency. Therefore, the term relative anoxemia has been used.

Burrows has advanced the idea that there occur areas of vaso-constriction, with resultant local anoxemia, and this gives rise to the liberation of products found in anoxemic tissues. However, as far as can be determined, the same idea has been expressed here but in chemical terms.

changes will occur simultaneously with the passing of the meteorological changes, and still others are cumulative. Possibly these variations in response are based upon individual buffering, conditioned in part by body types.

Meteorological Effects on Chemical Stability.

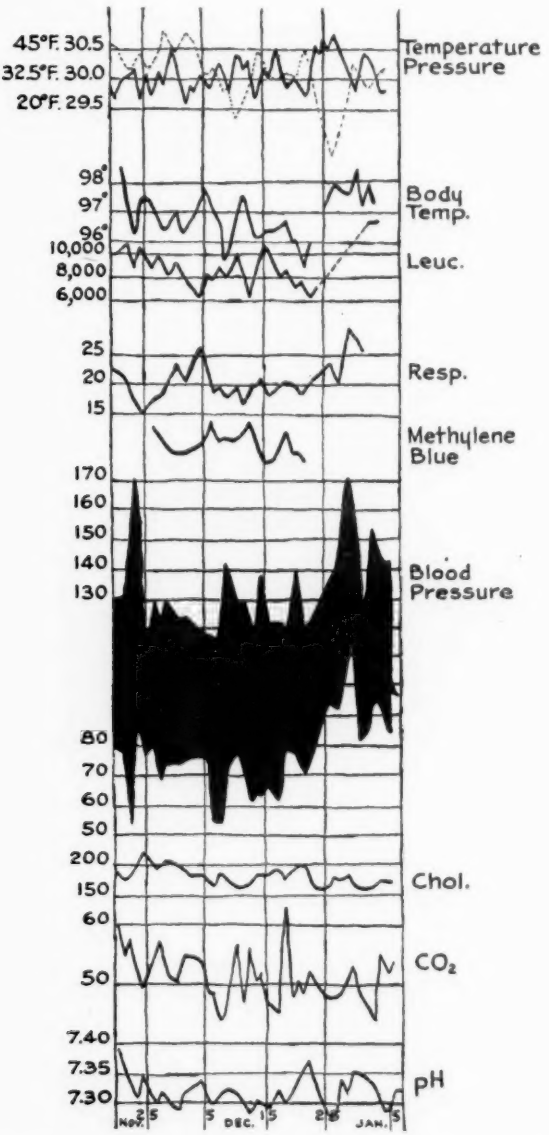
Since the changes in barometric pressure and in temperature are able to alter the concentration of oxygen, and thus produce states of relative anoxemia, it follows that there ought also to occur secondary ionic shifts. This hypothesis is at variance with the generally accepted idea that the ionic concentrations within the body are constant unless altered by disease or dysfunction. However, no matter about the variance, the fact remains that the changes in concentration do occur. The values from which the following chart was derived were obtained by making successive daily determinations of blood chemistry values on the same patient. By discarding the orthodox method of averaging results, and recording them instead as they were determined, the nature and extent of variations could be observed. As will be best illustrated by the chart, the swings in concentrations are determined by the meteorologic states. The only obvious conclusion is that they are due to the meteorologic state, which determines the amount of oxygen, and secondarily the state of oxidation of the hemoglobin, that is the percentage saturation of oxygen.

The following chart was taken from a text book on this subject,[4] and it amply illustrates the nature and extent of the changes, and also the relation to the meteorologic states.

Effect of Chemical Variations on Cellular Activity.

If the cellular substratum * is constant in composition, the cell ought always to react in an expected manner. However, if the substratum is variable then the responses should also be variable. Thus there are certain ions that will increase the cellular irritability, and, likewise, there are those that decrease the irritability. Similar ionic changes should decrease or increase the cellular irritability or reactivity. Cellular responses are known to vary for groups as well

* This is determined by the ionic concentrations both within and without the individual cells.



This chart has been copied from the chart on page 289 in Dr. Petersen's book, "The Patient and the Weather." (Edwards Bros., Ann Arbor, Mich., 1934. Vol. III.) In this book there is discussed this particular patient, and the moods that he presented at the prevalent meteorologic states. Objection may be made because everything is not according to theory, namely each and every change in oxygen concentration should give changes in the chemistry. However, the meteorologic state is continually changing, and not in a regular manner. For example a change may be abrupt and rapid, and quickly alter itself, and in such a case the chemical changes ought to be small, if occurring at all. This is what is expected; reactivity is also determined by the cellular states, which are conditioned by preceding states. In spite of divergences, the sum total of all charts on many patients lead to the belief that the nature and extent of the changes are due to individual buffering, and to the meteorologic states.

as for the same individual. Studies have shown that the reactivity is conditioned by the meteorological states obtaining at the time. Thus the complement fixation reaction, sedimentation time of erythrocytes, erythrocyte fragility tests, leucocyte responses, etc., all have been correlated with the meteorological states. It has been concluded that because of the many correlations noted the cellular reactivity is conditioned by the nature of the cellular substratum, which in turn is determined primarily by the meteorologic states.

Meteorologic States and Mental Reactivity.

Because it has been shown by a number of correlations that the cellular reactions are directly related to the existing meteorologic states, it ought safely to be assumed that the reactivity of cerebral cells should likewise be affected. In the case of the cerebral cells there are only two ways of determining reactivity, namely, the individual subject can be asked how he feels emotionally, or his objective behavior can be scrutinized. Obviously both methods will give an idea of the reactivity of the cerebral cells. Observations have shown that changes in a person's mood are directly related to meteorological upsets; moreover, definite changes of mood are often observed without the subject being able to account for his emotional state. In practically all such cases the changes in mood are directly correlated with the pressure and temperature existing at the time. Observations of this order have been carried on in such a way that the subject was unaware of the existing meteorologic states.

The second method, the observance of behavior, is of course the method of choice. Behavior is merely an objective expression of the reactivity of the cerebral cells. In the case of psychotic individuals this is the only method that can be used. Individual studies have shown that definite changes in behavior either accompany meteorologic upsets of some magnitude, or are influenced by the accumulation of a series of small upsets.

More definite proof of this behavior-meteorological relationship has been afforded through a study of acute psychotic episodes. Anyone conversant with psychiatry is aware of the fact that an individual normal in all objective reactions will frequently undergo an acute psychotic reaction in the space of a few hours. Such onsets have been correlated with the occurrence of meteorological

storms. In the light of what has been said, the explanation for such conduct is as follows: first, the meteorological upset is responsible for the ionic shifts, which in turn affect the reactivity of the cerebral cells; and the changed reactivity is expressed in abnormal or psychotic behavior.

In order to avoid any mistaken conclusions here let it be emphatically stated that the meteorological upset and its associated train of events *does not of itself cause the psychosis,* it is merely a conditioning factor. The individual must be predisposed originally by the as yet unknown factors of insanity. It is assumed that all the factors plus the meteorological upset are present at the time of the acute onset of the mental condition. For further information the reader is referred to special articles which deal with the incidence of onset of psychotic episodes, and the death rates of schizophrenics. Suffice it to say that at the present time sufficient evidence is at hand to warrant the statement that mood and behavior *are conditioned to a large extent by the meteorological environment.*

Discussion.

As facts, based upon what has been brought out, there are the following:

1. The amount of oxygen in the surrounding atmosphere is variable and is determined to a large degree by the meteorologic states.

2. Decrease in oxygen concentration beings about definite physiologic changes both in man (living at increased altitudes) and in animals kept under reduced pressures.

3. There is no degree of constancy in the concentration of the components occuring in the body as measured by the usual blood chemistry methods. Instead there is a rhythmical change in concentration and this is directly correlated with the meteorologic states.

4. There has been observed a constant close correlation between the onset and course of many somatic conditions and the meteorologic states.

5. Moods and swings of emotion, and the onsets of acute psychotic episodes have been correlated with the meteorologic states.

It is on the basis of the foregoing that certain deductions have been made regarding the rôle of the meteorological conditions in mental diseases.

First of all we know little about the nature of mental disorders, but the generally accepted view is that there are two sets of factors operative,[5] namely, those of an organic nature, and those of a psychogenic or functional nature. Proof of the existence or absence of any one of these two groups of factors is not conclusive, but in spite of this, there are those who believe that only one set of factors are operative. Nevertheless from the nature and course of mental diseases, it seems reasonable to assume the presence of the organic factors. Further, this view is substantiated by the post-mortem findings of non-specific lesions in the central nervous system of those dying in the course of a mental disease (schizophrenia). The psychogenic factor also cannot be discarded, and it must certainly play some part. It seems that both factors are equally important in the onset and course of any mental disease.

Prior to the discovery of the organism of syphilis in the brains of paretics, speculation was rife concerning the psychogenic nature of the disorder. Now that a definite factor is present and known, the psychogenic factors are rarely mentioned in the usual writings on the subject, and the organic factors are stressed and often give the impression that they are the only important thing in general paralysis of the insane. However, there also must be psychogenic factors, because it is entirely possible to have positive laboratory findings for paresis without mental symptoms. In other words, the mere presence of the syphilitic infection in the central nervous system, as indicated by the positive laboratory findings in the spinal fluid, does not bring about the clinical picture, but there must be in addition some psychogenic factors operative. On the same basis, it should not be said that there are no organic factors in mental diseases such as schizophrenia just because none has been observed in any degree of constancy. Likewise, the presence of an organic factor itself should not alone cause mental disease. In this connection it should be pointed out that insanity is a combination of things, and the committment (official recognition of insanity) depends upon economic factors which are quite variable. True, certain types of mental disorders are quite conspicious, and these require no scientifically trained person for their recognition. Occasionally a person who is obviously mentally ill is able to make an adjustment in his community without attracting undue attention. All

these things must be considered in addition to the organic and psychogenic factors in mental diseases.

In our studies pronounced differences in the degree to which a group of individuals will react to a meteorologic storm have been observed. Some will show changes in their blood chemistry values with each and every meteorologic upset, while others will show alterations which are minimal when compared with the opposite type. Some meteorologic storms of lesser severity will hardly be reflected in chemical determinations. In between these two groups of extremes are found all kinds of gradients, some showing cumulative effects, others presenting different reactions. However, the sum total is that all change in response to their meteorologic environment. The group that shows the least stability chemically is the poorly buffered group, while the other extreme which is chemically stable is termed the better buffered group.

Concerning the organic factor in mental disease, irrespective of the particular type of psychosis, it is here postulated that the individual who is physiologically unstable, and hence, poorly buffered, is the one who develops the mental disorders, assuming the presence of psychogenic factors. Such a person is biochemically unstable, and if the psychogenic factors are present, he will develop a mental disorder. Such a chemically unstable individual will not develop a mental disease unless the psychogenic factors are also present, but he may show swings of mood that at times are marked, but all within the accepted bounds of the normal. On the other hand, a chemically stable individual will not develop a mental disorder, even if the psychogenic factors are present.

By this postulate, the microscopic findings in the brains of those dying in the course of a mental disorder may be explained. In the early cases (young individuals) the findings are less prominent than in those of long standing. These individuals are chemically unstable, and will react to meteorologic storms with states of vascular spasm (resultant of the anoxemia), and the spasms will be also present in the brain. From these cerebral vascular spasms, if long continued, areas of destruction will result, which need not be specific in location.

This field is worthy of more study, for it offers a rational combination of organic and psychogenic factors. At the present time, work is being carried out to determine the exact nature of the

cerebral vascular spasms, and the location and extent of the degeneration areas under experimentally controlled states of anoxemia.*

Conclusions.

1. The meteorologic environment plays an important part in determining cellular reactions.

2. There are two factors present in mental disease, namely, an organic factor and a psychogenic factor. In the organic, chemical instability seems to be the important thing.

3. The meteorologic environment is the thing that conditions the organic factor in mental disease.

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* The organic factor is the chemical instability. Just what is back of this or responsible is a matter that is still open to question. However, the data secured from thousands of cases tend to show that the time of conception is quite an important thing in determining the chemical stability originally. Likewise, body constitution is important, but this seems to be directly correlated with conception time. The psychogenic factors are made up of the usual complexes, impulsions, inhibitions, etc.

VARIETIES OF HOMOSEXUAL MANIFESTATIONS.*

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From the time when Krafft-Ebing drew widespread attention to the problems of homosexuality, the matter has been seen to have increasing significance. At first believed to be a clear-cut relatively rare condition, it was described by Magnus Hirschfeld in a way and a context which made it seem a bizarre anomaly. But as psychiatry has come to see more understandingly into its patients, and as newer viewpoints have been clinically applied, we have come to recognize that far from being any unitary or isolated phenomenon homosexuality is an extremely complicated problem of widely varying manifestations. The purpose of this paper will be to call attention to the manifold aspects of homosexuality and to emphasize the importance of developing a broad concept of the phenomenon if we are to understand the protean clinical material which everywhere presents itself.

In the very definition of the word homosexuality there is occasion to pause, for the old definitions, "morbid sexual passion towards the same sex," or "sexual perversion toward the same sex," are not sufficiently inclusive to cover our present-day understanding. The trouble is that only a genital instinctive attitude of mind or behavior is indicated, as if all there was to homosexuality was gross erotic practice or the mere wish for it. When, however, we attempt to make a more suitable definition of homosexuality, we come upon difficulties. It is hard to offer a definition covering enough territory, because we can look at homosexuality from such different points of view. Shall we consider a fixed instinctive tendency?—or actual gross conduct?—or constitution and physique?—or personality and sublimated interests?

We should be able and willing to include the overt practice of a tramp and the well-controlled tendency of some happy head of a

*Read at the ninetieth annual meeting of The American Psychiatric Association, New York City, May 28–June 1, 1934.

family. We should have place for the vigorous big shouldered woman with increased hair growth and masculine voice and body build as well as for the motherly teacher in a girls' school, too interested in her work to get married. Then there are other cases to be considered. It is well known that there are changes from time to time in an individual's sexuality both as to intensity and as to quality. Sailors and army men are known to indulge in homosexual activities when heterosexual opportunities are long absent, only to renounce homosexuality when normal conditions are restored. Again, there is a chronological evolutionary progression of sex interest and conduct, in which a homosexual stage intervenes between the child's self-interest and the usual adult heterosexual adaptations. More complicated situations are very frequently met with. There are, for example, persons whose sexuality varies, being at certain periods in their lives quite heterosexually adjusted, but in whom interludes of homosexual activity occur. Again, though probably less frequently, we find persons who seem so ambivalent in their erotism that they desire and actually carry on homosexual and heterosexual relationships simultaneously and with satisfaction.

Attempting to include in one conception such diversified items as those referred to, it is evident that it will be simpler for us to adopt a new form of question about any individual patient. Instead of asking simply: "Is he homosexual or not?" we should inquire: "His homosexuality is evidenced in what ways, and under which conditions?" We may find homosexuality in either or both of two forms, the physiological-structural, and the instinctive-psychological with its tendency to produce conduct.

Homosexual expressions then may be constitutional, a matter of configuration, or linked with endocrine variations affecting hair distribution, bony structure, voice quality, and the like. Or they may be shown in the field of genital behavior, when they are customarily called "perversions." Perhaps we have not given enough thought to the comparison of a perversion indulged with a homosexual partner and the same perversion practiced with a heterosexual partner. This brings us at once to the conclusion that the mere behavior of the subject is not the whole matter. It is necessary to note that the individual has and seeks to indulge his present tendencies as the resultant of all that has come before in his personal development. His experiences, his evolution of preferences,

his conditionings in a multitude of details—all these have had their effects in building up his present response patterns. One person may have had experiences accenting oral strivings for the gaining of pleasures, while another's conditionings have stressed sadistic tendencies as most satisfying. It need not seem surprising if in a homosexual relationship the former should seek fellatio or cunnilingus and the latter should seek a masochistic partner. We could build up a series of graded levels of homosexual organization by noting the various types of perversions through which homosexuality is expressed in different instances. At one end of this series would stand the most primitive oral pattern, fellatio. At the most advanced level would be the case approaching most nearly to ordinary heterosexual activity—that of pederasty—which might be classed as a pseudoheterogenital level. Thus it seems possible, by considering the wide range of homosexual patterning, to obtain a better evaluation of the individual case. We can form an estimate of his organization which goes beyond the mere declaration of homosexuality and gives us more definite understanding of his problem and of the distance between his and the normal genitality.

An important issue arises as to whether the present status of the individual represents the topmost point in his advancement towards the usual adult patterns, or a retrogression from a former better matured pattern. And here must be taken into account those evidences perhaps less direct, which are seen in the evaluation of the personality traits of the individual. These are oftenest thought of merely as masculine or feminine without calling attention to any hetero- or homo-sexual significance. It cannot escape observation however that aggressive self-assertiveness and initiative are masculine traits, while passivity, suggestibility, and receptivity generally are of feminine coloring whether found in man or woman. If then we note one woman showing a number of the more male personality characteristics, and another whose tendencies are chiefly of female coloring, it may readily be seen that the selection of one rather than the other by some choosing man will be some measure of his interest in more, or less, femininity in his object choice, and hence of less, or more, homosexuality in his own make-up.

We are familiar with personal types which may be described as feminine women, masculine women, effeminate men, and virile men. By selecting our case material, it would be possible to form an

entire series of individuals showing a gradation from the extreme of womanliness to the extreme of manliness. This, let it be commented, can be done on a physical basis, or with a psychological criterion. It offers occasion for the observation that a woman who elects to marry a meek, docile husband who allows himself to be dominated, is evidencing a more homosexual tendency than is the woman who marries a dogmatic aggressive man.

Let us next consider the individual's own response to whatever homosexual urges within himself are seeking expression. Again, it is striking what a range of variation is to be found. Some of the factors whose variations will modify the total response are the following: The strength of the erotic drive; the amount of its gratification in other than homosexual pathways; the external situation in which the person finds himself; the patterns of self-control, morals, ethics, etc., which characterize his personality; the burden of public opinion and social attitude of his environment. Obvious are the differences of pressure from without and from within, in regard to one's homosexual inclinations in this country with legal penalties up to 20 years in penitentiary, as compared with parts of Syria where homosexuality is openly practiced; also, in the instances of a person of extremely rigid religious-moralistic upbringing and the person with few or no scruples of conscience.

The person with homosexual trends has few available possibilities for settling how they shall manifest themselves. He may frankly admit and gratify his tendency. He may so modify its expression as to make it socially acceptable through the process of sublimation. In this case we see certain character traits and certain forms of interest and activity which have a symbolic or displaced homosexual value, as in the case of the teacher in a boys' school, or the professional boxer, or the designer of clothing. And if neither of these courses is followed, there may result a sacrifice in his appreciation of reality, with the formation of a psychosis, or at least a setting aside of his understanding of the actual forces determining the situation. If he gains thus in not being so troubled by unacceptable partial trends within himself, it is at the cost of loss of recognition of important facts about himself and his purposes.

The question may be asked, but not so easily answered, as to whether in a given psychotic case, observed homosexual indications are primary or secondary; that is, whether there is a conflict over

homosexuality which has produced the mental disturbance, or whether the impaired mental functioning has failed to manage those trends in the patient's make-up. Such questions arise especially in alcoholic psychoses, in certain of the catatonic schizophrenic cases, and in paranoid patients. In other instances they are definitely secondary and have been released, as it were accidentally, as in the case of homosexual activities in the course of a toxic delirium or an arteriosclerotic confusion. We then are offered clues to better evaluation of the patient's stresses of life adjustment in the non-psychotic period.

Naturally it is of considerable importance, both for the understanding of the patient's illness and in the rationale of therapy, to determine the presence of homosexual problems as early as may be. Particularly is this true where the patient's conflict and sensitiveness are the greatest, although this very fact may lead to attempts at masking the indications. As examples of clinical findings which may make us think of possible homosexuality, the following are selected from case records at random. In their heterogeneity is evidenced anew the multiformity of homosexual expression—genital, kinesthetic, symbolic, delusional, hallucinatory, etc.:

A man became fearful and violent when rectal prostatic examination was made. Another expressed wonder that massage upset him profoundly. Another insisted upon turning his buttocks toward the physician. Another spent all his time for months saying: "It is not so; I am a perfect gentleman." Another showed affection for male attendants, saying they were really women in disguise. Another's interest in men was said to be because they were his sons. One could never decide to marry, saying he found no one so worthy as his brother. A delirious minister sought to pull men into his bed. A boy sawed off his ear as proof that he was too courageous to be homosexual. One patient grew angry because he was sure homosexuals were on all sides. One complained of feeling some hard object pressing on his palate and of a strange taste. Another asserted that he was given atropin to make him homosexual against his will. A confused man saw male genitalia all over his bed. A woman with masculine haircut talked loudly and boasted her strength. A deteriorated man talked chiefly of stabbing and shooting. A husband was potent only when intoxicated. One patient refused to use the mouth for any of its usual functions. A case

lovingly caressed the nasal tube without interrupting his feeding. Another complained of "strange scum" in his feeding. Another thought it contained semen. One was worried for years because of a mild homosexual advance offered by a friend. The prospect of marriage caused unrest, hypochondria, or actual panic. One man spoke of magnetic rays entering his body. Another wished seclusion to prevent getting germs in the throat. Another assaulted nurses in the belief they were attacking a fellow patient sexually. Another felt rectal pressures and requested a bullet-proof vest. A paretic heard voices saying he was homosexual. Another was being shadowed by gangs of men. A boy ate a lighted cigarette, and begged castration to cure homosexuality. One suspected his fiancée of having relations with his best friend. Another had numerous affairs with married women and wondered if he was God. Another insisted on sleeping and walking about nude. Another wished seclusion and attacked whenever nurses entered the room. Another sought to wrestle with or playfully to trip the attendants.

In every instance above cited, the cases were definitely found to evidence some form of homosexual problem. Some were concerned to deny the presence of homosexuality in themselves; some sought to escape responsibility for it; some showed variations of the inhibiting factors, with corresponding changes in the frankness of exhibiting homosexual behavior. Some defended; some welcomed; some worried. The point is that a multitude of clinical evidences confront the psychiatrist through which it is possible to discern a great variety of homosexual issues. But varigated as the individual pictures appear, they may be reduced to certain basic reaction patterns according to the individual's essential type of response.

In a study of such cases in one hospital recently, there have been found no less than 11 different patterns by which men have dealt with their homosexual urges. The simple formulæ for these types may be stated thus:

1. I want a man homosexually. Here is recognition and acceptance of the homosexual instinct without deviation.

2. I want a man, but on a guarded basis. In this case there is a limitation, a partial suppression of homosexuality.

3. I want a man, but not homosexually. This is another form of denial, less acceptant than type 2, but more so than the following.

4. I don't want a man homosexually. This is a simple denial and repudiation.

5. I want a man, but pretend he is a woman. At the expense of delusional loss of reality, there is here a sparing of any guilt over recognition of one's homosexuality.

6. He and I have similar, heterosexual, interests. Here a disguised interest is shown in the object's sexuality, but displacement prevents a feeling of anxiety.

7. I want many women. These cases are of the Don Juan type which seeks by over-compensation to avoid disquieting self-discovery.

8. A man wants me homosexually. Here is seen a projection upon the outside world, admitting the homosexuality, but avoiding responsibility for it. A variant is: I am made to be homosexual, which disclaims guilt but recognizes homosexuality in oneself.

9. Others are homosexual, but not I. This form of projection gives still more complete protection against the recognition of one's own involvement.

10. Others think I am homosexual. One here partly faces the idea of his own homosexuality, but projects it so as to be better able to defend against it.

11. There are great vague forces at work. This most interesting defense avoids the issue still further, by leaving out of clear focus the concept of homosexuality which is not seen, but often replaced by confused notions about gravitation, electricity, world influence, and the like.

From these various methods of dealing with some of the instinctive forces which motivate people, it can be seen that the problems of homosexuality as they confront the psychiatrist are not by any means simple situations. Instead of being merely a certain status which can be declared to be present or absent in a given patient, there is a mass of habit patterns by means of which certain instinct drives seek expression. If the habit patterns have been established differently in two individuals, then their homosexuality will necessarily follow different courses; and those differences we should be ready to recognize as aids in forming more accurate estimations of patients' problems.

The homosexual impulse might be compared to the bassoon in an orchestra; sometimes it plays solo parts; whenever it speaks at

all, it gives distinctive coloring to the music; but often it is quite silent; its driving power, the player's breath, is not so significant to us as is the quality imparted to the concert. Let us suggest then, in closing, that homosexuality may be regarded as a pulsing, fluctuating coloring of an individual's way of living his life, and assert that its expressions in habitus, in personality and character, in genitality, in conflict and in psychosis, constitute an exceedingly challenging province in the field of psychiatric study.

DISCUSSION.

DR. KARL A. MENNINGER (Topeka, Kans.).—*Ladies and Gentlemen:* It seems to me that we should thank Dr. Sprague and the Program Committee for putting on the program such a very important and often-neglected topic. I am sure that we could look back over the programs of a few years ago, over many years, probably, and this topic would not be found. Therefore, I think such a critical summary of certain aspects of homosexuality as Dr. Sprague made is timely as well as important. I was particularly interested in hearing of the 11 types of expression of homosexuality in the latter part of the paper, which I had already read and thought particularly commendable.

I am moved to certain critical remarks which I shall interject now, not only because I feel them, but because I hope they will afford a basis for some fruitful discussion. In the first place, I think the topic is really too big. To talk about homosexuality is like discussing New York City, or love, or political economy, or something of the kind. Perhaps I have a bias in this regard, as I find myself at issue with Dr. Sprague in the illustration at the end of the paper. I think perhaps my whole point of view can be best made clear if I take this illustration: He said that homosexuality might be compared to a bassoon in an orchestra; sometimes it played solo parts, and sometimes it was silent.

Those of us who study the unconscious psychological processes along with the conscious, I mean those of us who have some psychoanalytic convictions, would not be willing to agree to the aptness of that illustration at all. In the first place, homosexuality is never silent, it always expresses itself in everybody's personality in some way or other.

In the second place, it can not possibly be compared to a relatively insignificant single instrument like the bassoon in an orchestra. The illustration might be that it is like the strings in the orchestra, which are not so loud as the horns, maybe, but have a very important part to play in everybody's personality. Psychoanalytically, we do not feel at all that homosexuality is the nasty little part of the individual which crops up now and then and with which some individuals are unfortunately afflicted to a more conspicuous extent. We take the position that everybody has in his personality a very large amount of homosexual demand, along with his heterosexual demand.

Third, I think I might criticize the paper a little, too, because of some confusion that arises out of the author's failure to distinguish between con-

scious and unconscious homosexuality. You remember that toward the end, Dr. Sprague illustrated 11 ways in which the homosexual urge is handled by different individuals. My point is, that what he listed here is not all homosexuality, but some of these were the various barriers erected by the individual against his homosexuality, against his unconscious urge toward homosexuality. I am sure Dr. Sprague knows this and I think it would lend clarity to the paper if, accepting as much of psychoanalytic theory as he does, he would go, if not the whole way, at least a little further.

Every individual has in him the narcissistic love, homosexual love and heterosexual love. So if I go to a luncheon to-day with three or four of my friends, unconsciously this is undoubtedly a gratification of homosexual impulses even though I am not aware of sexual feeling in it. Certainly I don't go to lunch with my men friends because I love their wives, or their mothers; I go because I love them, because I like to be with them. To carry out genital activity with them, would be conscious and overt homosexuality, quite a different thing. It is just as necessary to distinguish between them as to distinguish between blood that is flowing out of a wound and blood that is supplying the tissues inside. One is overt and exposed by some disintegration of the fabric, and one is internal and necessary to the organism.

This distinguishing between conscious and unconscious homosexuality is important, because many people think when you say homosexuality that you refer to genital activities with somebody of the same sex. The paper carefully seeks to prevent one from getting that idea, but I do not think this is possible without a clear distinction between conscious homosexual feelings or activity and unconscious homosexual feelings or activity. Otherwise one wonders—Does he mean sublimated oversexuality?, inhibited homosexuality?, denied and rejected homosexual feelings?—all these various stages in the development of our interest in the outside world.

Therefore, I think if Dr. Sprague would make this distinction a little more clear, I would find great satisfaction in this very nice collection and presentation of some of the forms in which homosexuality is observed.

I want to say again that the one reason for this contentious discussion is to provoke some defense and some support from other discussors in the hopes of a fruitful discussion of this interesting paper.

Dr. Isador H. Coriat (Boston).—I would like to follow up Dr. Menninger's remarks by discussing the question of homosexuality from the dynamic or analytic standpoint. I feel that I must express a different opinion from that of the last reader, in spite of his illuminating paper in which he has shown that homosexuality may manifest itself on different libidinal levels, because I am quite skeptical that homosexuality is ever a physiological or a constitutional difficulty, as he has termed it.

Analytical experience has shown that homosexuality is more instinctive than physiological; it is not a difference in sexuality but in object-choice. If it is physiological, structural or constitutional, then we are dealing more with a somatic hermaphroditic manifestation with homosexual tendencies. Of course, it is well known that in the development of homosexuality and in its

various manifestations, whether this homosexuality is conscious or unconscious, the super-ego plays a great part, in the presence or absence of feelings of guilt. In the original narcissism which lies at the basis of all homosexuality, the individual loves members of his own sex because he loves himself.

In psychoanalytic therapy, the analysis cannot change conscious homosexuality to heterosexuality any more than psychoanalysis can change a heterosexual to a homosexual. What psychoanalysis does is to repress the manifest homosexuality; it then reconstructs the repressed heterosexual drive to form a new object choice. From the purely psychiatric standpoint it is well known that homosexuals occasionally commit suicide and this suicide can be interpreted possibly as a regression to the original mother-matrix, out of which all homosexuality develops on account of the early development of the Œdipus situation. Oral regression in homosexuality is very common, either in the form of active fellatio or in the form of fellatio fantasies or dreams. In those cases which come for analysis because of anxiety, conflicts and depression due to masturbatory activities, as the analysis unfolds the unconscious material, it can be demonstrated that the masturbatory activities are really manifestations or covers of the repressed homosexuality.

Homosexuality is common in both sexes. We know its mechanism in man; we are beginning to understand its mechanism in woman. In both sexes psychoanalysis has shown a very definite relationship of homosexuality to paranoid states. In women, homosexuality seems to be associated not with the feeling of inferiority or the inferiority complex, but rather with a definite characteristic of female psychology, namely, penis envy and the feeling of an illusory penis.

CHAIRMAN HAMILTON.—Must we have an entire divorcement between constitution and function?

DR. CORIAT.—As far as homosexuality is concerned, I think so.

DR. CHARLES I. LAMBERT (New York City).—*Mr. Chairman:* The thing that impresses me about the homosexual is, first, the constitutional make-up. Starting with the obvious bisexual make-up of the hermaphrodite, in which the gonadal structures may show a fifty-fifty distribution of the sexual characteristics, a relative departure toward the extreme, or inverted sex types, may show itself. In consequence of this, homosexuals of either sex may show preponderantly active, aggressive behavior on the one hand, or passive, submissive conduct on the other, with intergrading varieties between the two extremes; and then the rôle of dynamic influences in the environment and experience may tend to fix emotional-instinctive reactions in these individuals at early periods in their development, with the result that persistent immature satisfactions will favor the development of a homocentric personality make-up rather than a balanced homoheterosexual character. In my opinion, both constitution and environment have to be considered in estimating the eventual personality make-up of the so-called homosexual. In an individual who is preponderantly aggressive and assertive in his aptitudes we may expect transgressive reactions toward another individual, or society;

and, on the contrary, the individual who is more passive, submissive in his make-up is more likely to develop a sense of reproach and guilt, and direct this feeling toward himself with possibly suicidal impulses, as the extreme of his reaction. Only a careful study of the constitution and personality make-up will enable us to estimate and predict the preferred type of response the homosexual will display; and Dr. Sprague, the reader of the paper, has given us this approach in an exceptionally lucid way.

Dr. Ernest M. Poate (Southern Pines, N. C.).—It used to be the case that if anybody talked about homosexuality, everybody else kept quiet and looked ashamed. Now, if you talk about homosexuality, everybody else gets up and wants to argue. I want to disagree with Dr. Coriat. I do not believe it is possible to separate function from biological constitution. You cannot say that homosexuality, for example, is purely a matter of psychological urge. That urge must be expressed physically, if at all. We do not know whether it originates in the psyche or in the ductless glands.

I would like to bring out something you probably all know; that at puberty practically every normal boy goes through a phase of conscious homosexuality, which may be merely fantasies, anal or oral, or regarding imagined inversions of sex, or may go on to more or less sincere experiments, usually in pederasty. Occasionally there is a phase of quite active homosexuality for several months, which then disappears and usually never recurs.

Dr. S. W. Hartwell (Worcester, Mass.).—I am sorry that I did not hear all of Dr. Sprague's paper. I may say that my opinion, based on the study and treatment of a considerable number of adolescent boys and girls who were indulging in overt homosexual practices or who very definitely recognized their desire to do so, is that there is little reason from these clinical observations to believe there is a constitutional basis or element in the causation of homosexuality as observed in children or adolescents. These patient do not have glandular dysfunctions clinically demonstratable, nor the physical characteristics of the opposite sex. I have seen also a large number of children who did have glandular dysfunction and contra-sex physical characteristics and in only one case was this condition associated with homosexual manifestations. And this boy had been badly repressed and punished as a very young child for sex acts with his sister largely based on curiosity.

I believe that a large majority of children, both boys and girls, go through a period when homosexual feelings are conscious and in greater or less degree acted upon. The two factors that in my cases have seemed to be most important in the child failing to go on to a heterosexual psychosexual adjustment are first and most important his or her fixation on and an instinctual satisfaction through the parent of the opposite sex that lasts too long or is too important; second, a feeling of guilt about his acts, or more often his desires, that is not liquidated while it is yet conscious.

I have a number of interesting cases demonstrating these mechanisms that I hope some time to present to this society.

DR. GEORGE S. SPRAGUE (Bloomingdale Hospital, White Plains, N. Y.).—I want to thank the gentlemen who have contributed to the discussion, because doing that has accomplished the purpose I had in mind. I wished to accent the fact that homosexuality is many things rather than one thing, and so, was pleased with Dr. Menninger's first criticism that the topic was too big.

Dr. Menninger asked whether the tenets of analytical therapy about homosexuality were convincing to me. They are. I did not want to get into a discussion of that topic, because I did not want to raise specific issues, but I would conform with them definitely.

Dr. Coriat brought up the question of doubt as to whether homosexuality was ever constitutional-physiologic, another question that I did not wish to make any attempt to settle, but I am glad that the question was brought before our minds. I was thinking of this subject somewhat in the way one thinks about typhoid fever. Typhoid fever may come to the attention of a clinician because of fever, first, or it may come in some other case because rose spots are discovered, or in the third case because diarrhea is complained of; but from whatever angle it is first discovered, one traces through his threads and comes finally to the realization that typhoid fever is the question with which we are dealing and which we must treat.

My purpose, then, was to call attention to a number of various ways in which the homosexual problem may confront the clinician, whether an analyist, a constitutionalist, or whoever it may be. I am sure that we may get one of our first clues to the existence of such a problem in a constitutional finding. Whether that be etiologically related or not, I do not attempt to discuss at this time; but one may find, for example, the masculine body which is practically devoid of hair growth, or the feminine body which is excessively hairy, and such a finding might lead one to consider whether there was a special manifestation.

I would grant, of course, that homosexuality is present in all instances. The bassoon example has been taken as suggesting what I did not mean to suggest, that homosexuality plays a latent part ever, but it may not be the thing that one is consciously most aware of.

TEACHING PSYCHIATRY.

The Vermont Plan.

By JAMES C. O'NIEL, M. D.,
University of Vermont.

Those engaged in the teaching of psychiatry at the University of Vermont College of Medicine can claim no credit for the development of what I have chosen to call "The Vermont Plan."

This plan is simply a part of a larger, broader plan devised to furnish clinical experiences in as many subjects as possible to the members of the fourth year class.

In order that you may understand the necessity for some such plan it is necessary that I acquaint you with something of the geography of the state, and of the facilities, or lack of facilities, afforded by Burlington, the seat of the University of Vermont.

Vermont is a small, mountainous state with a population of 359,000. There are no large cities in the state; Burlington with a population of 25,000 being the largest city. Most of the other cities and several smaller towns have hospitals but they are small and the locations widely scattered so that they afford little opportunity for clinical work to the students at Burlington.

Burlington has three hospitals with a total bed capacity of about 290. Two of these hospitals are within sight of the medical college; the other is three miles away. Burlington also has a free dispensary under the direction of the college authorities.

Back in 1912 and 1913 the College of Medicine nearly lost its "A" class rating chiefly because of an apparent lack of clinical facilities. The aim of the college authorities since then has been to increase those facilities to the greatest possible extent.

As one means to this end, and also in keeping with the general trend to make the fourth year one devoted largely to clinical work, Dr. J. N. Jenne, Dean of the College of Medicine, in 1929 arranged the plan whereby the fourth year students would spend practically all of their time gaining clinical experience.

The plan as devised, and now in operation was, in its details, original with Dean Jenne, who informed the writer that it was suggested to him by reading of a plan operating at either Michigan or Minnesota where the fourth year men went in groups for a part of the year to some particular hospital for clinical training.

Dr. Jenne enlarged upon this plan and " divided the class into two parts, each in turn being assigned to the intramural and the extramural service, for one semester. The group assigned to intramural service, singly or in sections of two or four in rotation, for periods of two weeks, were assigned to clinical clerkships in the several hospitals, the dispensary, the out-patient department and the Vermont State Laboratory of Hygiene.

The extramural groups, singly or in pairs, were assigned to a rotating service for periods of two weeks each, at the Vermont State Industrial School, the Vermont State Sanatorium and Preventorium, the Brandon State School and the Vermont State Hospital and to a preceptor for four weeks.

The student or students at each station are under the immediate tutelage of the preceptor or head of the department or institution to which he is assigned.*

The combined services give the student such a variety of experience as could hardly be gained under any other plan, including as it does not only general hospital, dispensary and out-patient service, but experience with delinquents, tubercular, feeble-minded and the insane.

The four weeks' services with the four perceptors seem to be under our conditions particularly valuable for the following reason: The large centers of medical education are marvelous in their physical equipment, their clinical advantages and their teaching staffs, but their aim seems to be to head students toward specialization, if not to actually turn them out as specialists. Few if any of their students, either by training or by seven years' residence in a large city, are likely to develop an interest in practising in the small towns of Vermont, New Hampshire, Maine, or any other state in the union.

Even if life in a small community appealed to them the return on their educational investment would very likely appear too slow and too small.

* The Vermont Bulletin, Vol. XXX, No. 3.

The argument that small colleges training students to serve in small communities were absolutely essential if the rural sections of our country were to have adequate medical coverage was I believe the most effective argument of the late Dean Tinkham in his battle to keep Vermont in its "A" class rating. For nearly a century before, but especially since that day, Vermont has striven to furnish a thorough grounding in medical education which tends to develop an efficient, self-reliant, capable, general practitioner, many of whom it is hoped will remain in Vermont to serve the people, especially those of the rural communities.

That such training also enables them to proceed to eminence in the specialties—psychiatry for instance—the late Dr. Mitchell, a Hamilton, a Thom, a Bonner, a Tillotson and many another, will testify.

The month spent with the country-practice preceptor gives the student not only a taste of country practice but often a liking for such practice and, of still greater importance, it gives him a self-reliance and an ability to work under disadvantages and handicaps, which months in a hospital with every convenience at his disposal and assistance at his call will not give.

The subject of mental diseases was taught at the Vermont College of Medicine as far back as 1880. From then until 1893 the course consisted in 10 lectures given during the second half of the fourth year. No clinical demonstrations were given.

With the opening in 1893 of the State Hospital at Waterbury, 28 miles away, clinical material was available but was necessarily meager because the hospital population was very small and at first consisted chiefly of chronic cases transferred from the Brattleboro Retreat, and the students spent but one afternoon at the hospital. Later a few typical cases of some of the diseases were taken to Burlington for demonstration in course of the weekly lecture.

In the early years of the present century after the late Dr. Wasson became Professor of Mental Diseases the students went to Waterbury on three successive Saturday afternoons for their clinical work. Following the death of Dr. Wasson in 1918 the course was given by Dr. Crossman who then conducted a private sanatorium at Burlington and who later became chief medical officer of the Veterans' Bureau at Washington. It was at this time that the writer took over the clinical work at the state hospital.

In 1924 Dr. Crossman resigned from the professorship of psychiatry and the writer was appointed to fill the vacancy.

The series of didactic lectures was then extended from 10 to 22. At that time also an addition was made to the course in the form of a series of 10 lectures on social psychiatry, all crowded into a period of five days. This course was given by Dr. D. A. Thom, of Boston, until 1929 when he resigned. It has since been conducted by Dr. C. A. Bonner, Superintendent of Danvers State Hospital.

With the inauguration of the general plan of fourth year clinical work in 1929 the lectures were necessarily given in the third year, and from the first of October to early in June the fourth year students came in pairs to the state hospital for a two weeks' period. The daily work of these students while at the state hospital is scheduled as follows: At eight o'clock on four mornings a week they attend staff meeting. From two to four cases are presented each morning and after the summaries are read the students not only listen to the questioning of the patient by the superintendent and the other members of the staff but are invited to ask such questions of the patient as they may desire. Furthermore they are invited to enter into the discussion of the diagnosis, prognosis and treatment which follows.

These meetings are, we believe, the most interesting and helpful part of our program for in the course of two weeks from 15 to 20 cases of as great clinical variety as possible are presented.

Following the staff meeting the students are presented with a list of cases diagnosed under one of the psychoses, beginning with traumatic psychoses and eventually covering most of the conditions listed in the National Committee for Mental Hygiene's Classification.

The cases under each psychosis are chosen with the idea of not only giving the student a fairly complete and comprehensive picture of that particular psychosis as a whole but of also presenting the variations which occur in different cases, thus impressing upon him the fallacy of the idea often conceived by the student from his didactic lectures that each psychosis as described covers a constant and unvarying entity, and of further impressing him with the fact that it is not the psychosis but the individual patient who contributes the variations to the general picture, who is of interest and requires our attention.

The student spends the remainder of the morning studying these case histories and is required also to thereafter interview the patients thus studied if they are still in the hospital.

He is not confined to this list, however, but is at liberty to read up the case history of any patient who is or has been in the hospital whose case interests him.

Each Monday morning the students assist one of the ward physicians in treating the general paralytics, thus learning the technique of such treatments and of the taking of blood and spinal fluids for Wassermann tests.

The afternoons are devoted to physical examinations, laboratory work, vaccinations, and, if time permits, further clinical work on the wards.

At the Brandon State School a somewhat similar schedule under the direction of the superintendent, Dr. T. J. Allen, gives the students a first-hand knowledge of the problem of the feeble-minded.

From the standpoint of the student this plan is obviously greatly superior to any that had previously been in operation. The original courses gave the student a hasty and unsatisfactory glimpse into the realm of mental diseases with no or little opportunity for clinical study. The later course with its three clinics at the state hospital did not improve upon the length or breadth of the didactic teaching but extended greatly the opportunity for clinical study—so greatly that it is questionable whether the students of those days finished the course with any clearer conception of mental illness because the amount of material presented at those clinics necessarily tended to confuse rather than clarify the subject in the student's mind.

To those associated with the larger centers for the teaching of psychiatry, to all who are acquainted with recent advances in the teaching of this subject and to all who have read the report on Psychiatry in Medical Education * the shortcomings and inadequacies of our present course are readily apparent. The writer's series of 22 lectures deals quite adequately with the symptomatology, diagnosis and treatment of mental diseases, history taking, examination of patients and commitment procedures but very inadequately with the psychobiological development of the individual. One of our tasks with each succeeding class has been to eliminate

* Psychiatry in Medical Education, by Ralph A. Noble, M. D.

from their minds the idea that psychiatry is a specialty which concerns them at present only to the extent of getting a passing mark and will concern them in the future not at all.

A course of lectures on psychobiology given in the first year, or even during the pre-medical years, would not only eliminate this idea at the very beginning of their medical course but would tend to focus the minds of the students on the integrated organism throughout their medical studies.

Another definite fault of the lecture courses is the crowding of the mental hygiene lectures into such a short space of time, two hours a day for a period of five days. The excellent material presented by Dr. Bonner cannot be properly absorbed under such conditions.

The chief fault with the clinical work at the state hospital appears to be in the lack of time the clinical director can devote to the students. It would seem advisable that some agreement be reached whereby the professor of psychiatry could devote more time to teaching at both the college and the hospital.

Another great drawback from the standpoint of the students is the absence of an out-patient department where opportunity would be given for the study of the psychoneuroses and incipient psychoses.

However, with all its faults, the present course gives the students a reasonably sufficient knowledge and understanding of psychiatry and mental hygiene. This has been indicated by the answers received by Dr. Ebaugh on questionnaires submitted to recent fourth year classes.

From the viewpoint of the hospital the arrangement is quite satisfactory. The students remove certain routine duties from the shoulders of the members of the staff, thus freeing the latter for more important work. The chief benefit however accrues to the members of the staff by being kept constantly in touch through the students with the latest developments in the various branches of medicine. Their questions at staff meetings and at other times relative to matters psychiatric also tend to keep the members of the staff more alert and interested in their own branch of medicine.

Finally, the plan, if its possibilities were fully developed, would seem ideal in that it conforms closely to what Dr. Flexner expressed to Dean Jenne as his conception of an ideal course when he

said in substance to the latter in 1914 that "the teacher should assign to his lectures a definite amount of time and have a sufficient amount of clinical material to demonstrate each and every condition as it was lectured on."

Our students have had their lectures before they come to us in the fourth year, but their study of the case histories refreshes all this in their minds and they have at hand an abundance of clinical material presenting the definite symptoms and characteristics of which they have just read and studied.

DISCUSSION.

DR. FRANKLIN G. EBAUGH (Denver, Colo.).—Since I have had an opportunity to visit the University of Vermont, I can definitely subscribe to the efficiency of the educational procedure just given us. I was especially interested in my interview with students. At the time of my visit there were two students in residence at the state hospital. These students did not profess any marked aptitude toward psychiatry. They did, however, definitely indicate that their attitude towards the state hospital and towards mental disease in general was changed. They were interested in administrative procedures. They indicated that they had a reasonable knowledge of commitment procedures, and so on. They were quite interested in the mental and physical examinations, laboratory and pathological work done at the hospital.

Surely in terms of meeting local situations and of utilizing the only available resources, the Vermont plan has many advantages.

As the appraisal for the division of psychiatric education was being completed, I was quite surprised and pleased to find how frequently the state hospitals have been used in the teaching of psychiatry. For instance, there were 19 schools utilizing to some extent the state hospitals in their teaching program; of these 19 schools, seven had a well-organized system of resident instruction through which each student would spend from one week to one month in the hospital. Probably the best example of this work is what we find in the State of Massachusetts in connection with Boston University and Tufts University.

Naturally the participation of the state hospitals in medical education for the future can be expected to be extended. The improvements in the facilities of the state hospital personnel, the opportunities for liaison with teaching institutions, are very great. In fact, in approximately one-fifth of the medical schools in this country the only clinical facilities that are available for psychiatry at the present time are found in the state hospitals.

I have already spoken of the use of state hospitals in the general basic training of doctors; in interne training, we have equal possibilities. At the present time, for instance, less than one-fifth of medical school graduates are receiving interne training in psychiatry. It is, of course, not possible to advise interne participation in psychiatry in a 12 months' schedule. How-

ever, psychiatry now, and I feel in the future, will see an extension of participation in the general interneship where we have an 18 months' to a 24 months' interneship. I feel that will be desired by our recent graduates themselves and there are many healthy tendencies pointing that way.

In terms of postgraduate education, it is accepted in all fields that the apprenticeship or assistantship type of training is advisable. In the recent discussions regarding the organization of the American Board of Psychiatry and Neurology, three basic years or three years for specialized training were advised. Surely many of our well-equipped state hospitals will be used for this training program in the future.

Another very interesting development centering around the state hospitals, probably one of the most interesting developments in this country in medical education, is shown in the continuation education which was inaugurated by Dr. Meyer many years ago, providing short courses, or review courses, primarily for physicians in the state service. This work has continued through Dr. Hoch and Dr Kirby and during the past year Dr. Cheney has had 25 physicians enrolled in his course at the Psychiatric Institute. There are many other examples in this country of such continuation education, so we can visualize for the future greater use of the well-organized state institutions, I am sure, in all phases of medical education.

Dr. O'Niel has pointed out a most glaring defect, mainly that although the practical training is well supplied in a most interesting way, the basic and fundamental preclinical training is not supplied.

Dr. Ernest N. Poate (Southern Pines, N. C.).—I want to say that I feel very strongly that teaching of clinical psychiatry should be begun in the wards of the general hospitals. There you find plenty of psychiatric material if you look for it. You will always find uremic stupors, you will always find mild excitements and depressions, you will find abnormal personalities and neuroses without number. At least 50 per cent of the population of any general hospital consists of the neuroses, purely psychogenic conditions. These patients are seen by the medical students. In teaching them clinical medicine they should also be shown the psychiatric aspects of the patients in whom they are already interested; they will then begin to perceive psychiatry as a means of getting new light on their own patients, instead of merely something that is only applicable in state insane hospitals, which they know nothing about. After you have been able to show them the personality deviations and the milder psychotic conditions and the neuroses, then they can go on to a study of the major psychoses with some intelligent interest.

For that matter, what the average general practitioner wants to know about the major psychoses is simply when they present indications for commitment. He is not going to treat them. What he needs to know is the minor conditions, the neuroses and psychoneuroses and all sorts of minor psychoses that he meets with every day and which are almost invariably undiagnosed, called colitis, irritable heart, thyrotoxicosis and all sorts of similar misnomers.

THE HUMM-WADSWORTH TEMPERAMENT SCALE.*

By DONCASTER G. HUMM and GUY W. WADSWORTH, JR.

Section I. The Development of the Temperament Scale.

This study of temperament was undertaken because of a need discovered in the development of a personnel program in a public utility corporation. We had found that each job had objectively measurable requirements with regard to physical fitness, intelligence and skill; but we also had found that temperamental factors were important in determining fitness. These were studied, in the first instance, by the case work method. Experience with such study suggested the usefulness of a diagnostic test.

When we attempted to use current tests of temperament, we discovered that, while effective in some cases, these tests did not provide a sufficiently differential analysis in many instances. On the other hand, in our case studies we had found that Rosanoff's theory of personality [1] provided an analysis adequate for our needs.

We determined to use his theory in the construction of a test or scale to provide an objective measurement of temperament.

After about a year's work, we completed the standardization of our first form and prepared a preliminary report.[2]

While this first scale showed valid differences in the various components of temperament, distributed in approximate conformity with the normal curve, there were some traits which had not been adequately covered. Accordingly, we proceeded at once with the second form. This is a report of our work with it.

Theory of Temperament.—There are definable and recognizable components of temperament. Rosanoff's theory of personality

* The test described herein and the Manual of Directions accompanying it, which form the basis of this article, are protected by copyright.

[1] Rosanoff, A. J.: Manual of Psychiatry, Sixth Edition. Part II, Chapter XXV, "A Theory of Personality Based Mainly on Psychiatric Experience." John Wiley & Sons, New York, 1927.

[2] Humm, D. G., and Wadsworth, G. W. Jr.: "The Humm-Wadsworth Temperament Scale, Preliminary Report." The Personnel Journal, April, 1934.

represents a summary of descriptions of various components of temperament observed by such men as Léri, Birnbaum, Kraepelin, Spratling, Binswanger, and Davenport, together with Dostoyevsky and Flaubert. He has combined these with his own observations to make a unified theory.

An important part of the theory is the concept of abnormal behavior merely as uncontrolled manifestations of the same temperamental components which actuate the normal individual. Stated otherwise, such components are present in some degree in the temperamental organization of every individual. This suggested the possibility of testing these components.

Rosanoff's theory may be outlined briefly as follows:

Each group of traits dealt with is regarded as a *component* of temperament. *Diagnosis* consists of identifying the component or components which appear to predominate or to be emphasized in the temperamental make-up of a given subject. *Analysis* of temperament requires measurement of each component, whether manifest or latent.

The components are listed below with the symbols used to identify them in the temperament scale and with the constitutional mental or nervous disorder in which an extreme degree of each is typically observed.

Component.	Symbol.	Disorder in which observed.
1. "Normal"	N	
2. Hysteroid (or Anti-Social)	H	Hysteria, criminalism
3. Cycloid a. Manic Phase	M	Manic-depressive psychoses
3. Cycloid b. Depressed Phase	D	Involutional melancholia
4. Schizoid a. Autistic Phase	A	Dementia præcox
4. Schizoid b. Paranoid Phase	P	Paranoic conditions
5. Epileptoid	E	Mental disorders allied with epilepsy

1. The "*Normal*" *Component* is primarily a control mechanism, providing rational balance and temperamental equilibrium. It underlies the conservatism and conformity to socially acceptable behavior observed in the well adjusted subject. Essentially a "brake" or "balance wheel," the normal component presents mainly characteristics associated with restraint, and persons in whom it is over-accentuated may be given to indiscriminating conservatism. In diagnosis, the term "normal" is rarely used alone except for such ultra-conservatives. It is generally used in combinations such as "normal-cycloid," "normal-schizoid," etc., where it refers to individuals whose temperament is under control, and who are essentially well adjusted, but who also show a large degree of cycloid or schizoid temperament.

Our use of quotation marks with the term "normal" is for the purpose of connoting the special meaning attached to that word in our discussion of its application in the test and in the theory of temperament upon which the test is based.

2. The *Hysteroid Component* is concerned essentially with self-preservation. An individual with an excess of this component possesses a character defect with ethically inferior motivation, manifested by malingering, stealing, lying, cheating, and similar anti-social behavior. A moderate degree of hysteroid tendency underlies much of our prudence, shrewdness and diplomacy, and may even contribute to social adjustment, since socially acceptable conduct often serves the ends of self interest.

3. The *Cycloid Component* is characterized by emotionality, fluctuations in activity, and interferences with voluntary attention. The manic phase is manifested by some degree of elation, pressure of activity and distractibility, together with such manifestations of excitement as jests, pranks, enthusiasms, impatience, etc. The depressed phase is manifested by some degree of sadness, lessened activity, dearth of ideas, and associated characteristics such as worry, timidity, feelings of malaise, and the like. The manifestations of a general cycloid nature are fluctuations from emotional equilibrium, hot-headedness, difficulty in sleeping, etc. Cycloid subjects are enterprising, sensitive to social situations, versatile and sympathetic. They are handicapped by such tendencies as emotional thinking, lack of persistence, changeability of mood.

4. The *Schizoid Component* is characterized by heightened imagination. It leads to a tendency toward a day-dream life, concerning which the subject is sensitive. The autistic manifestations are seclusiveness, shyness, suggestibility and the like, accompanied by an ability to visualize and to concentrate on special tasks, excluding diverting interests. The paranoid manifestations include stubborn adherence to fixed ideas, conceit, suspicion and contempt for the opinions of others, with behavior fitting these traits. In the presence of sufficient "normal" component, the paranoid phase is of value in pushing through programs which meet with resistance.

5. The *Epileptoid Component* is characterized by inspirations to achievement which are meticulously developed and pushed through to completion. It causes the subject to spend endless time in working out projects, and yet, at times, to appear inconsistent because of some contradictory inspiration. The inspirational tendency is often of a religious nature. There are sometimes explosive temper manifestations, often occurring on slight provocation, after long periods of endurance. Some physiological symptoms associated with epilepsy, as well as epilepsy itself, are likely to be present or to appear in the history.

Procedure.—The first step in test construction was the compilation of a great number of questions. These questions covered the constituent traits of the various components; that is to say, there were questions on retardation, pressure of activity, emotional tone, and other traits of the cycloid component; questions on shyness,

day-dreaming, delusional tendencies, and other traits of the schizoid component, and so on. Finally, 318 questions were selected, mimeographed, and made into an experimental test form.[1]

At this point certain observations seem pertinent with regard to the formulation of questions. A great deal of difficulty was experienced in devising questions expressing the desired shades of meaning which would stand the test of objective research. Questions which had seemed in advance to be well stated were often found to have little differentiating value. We finally learned to put little trust in our opinions as to the validity of questions before they were evaluated statistically. Our criterion for accepting questions was a valid statistical difference between the answers of subjects known to have the trait and those not having it.

We devised some 2000 questions from which some 450 were tried out in the preliminary and final forms of the scale. Our conclusion with regard to some questions, which proved statistically valid, is that the relationship which they bear to given components is not an obvious one, a priori. However, in the majority of valid questions, the relationships are fairly obvious.

These observations are important, inasmuch as some individuals tend to appraise test material from a subjective point of view. One, perusing intelligence tests, asks: "How does the fact that I know that a Zulu has two legs instead of ten prove I'm smart?" Others, reviewing a test of temperament, are likely to state with some finality that "this test would be good if the questions were only stated so-and-so." In this regard we can only say that the findings of actual research frequently upset our own preconceptions. Many of our original questions were framed following case experience, attendance at staff clinics, etc. Those which had elicited significant responses when asked orally were used verbatim. Some were valid when used in a written form, and some were not. In short, instead of being able, subjectively or otherwise, to be certain of what questions should be asked, and how they should be worded, we were forced to undergo an empirical trial in which we were fortunate if one question in four justified our expectations.

Another observation is that the setting in which a question is placed in a test seems to make a difference. One might easily assume that, upon conclusion of the work with a research test

[1] The questions finally selected are given in Appendix III.

form, all that remained to be done would be to segregate the valid questions and assemble them in a shortened test. Our experience with valid questions from our first form, when used in the second set of questions, was that the degree of validity varied in some instances, and, in the case of one question, the validity was entirely lost. It appears that the context of preceding questions, and presumably the trend of thought thereby aroused, may affect the attitude of the subject toward a given question. In short, the validity of a question appears to obtain only in the setting in which it was standardized. This explains the action of the authors in publishing a rather lengthy research form verbatim. It will be noted that certain questions have no score value assigned to them, which means that they are not valid. However desirable a shortened form might be, we are not prepared at this time to present a test consisting only of valid questions.

After compiling the questions, the next step was the selection of individuals on whom the test was to be tried.

Hysteroid or anti-social subjects were selected from among habitual criminals in a state prison. Cycloid, schizoid and some epileptoid subjects were selected from among inmates of state hospitals for the insane, including cases of manic-depressive psychoses, dementia præcox, and epilepsy. In this selection we were assisted by members of the hospital staffs to obtain, so far as possible, cases of unmixed psychoses and epilepsy. Some cases of epilepsy were secured from homes for indigents and from among the patients of private physicians. Patients whose clinical records or case studies furnished no evidence of marked possession of a given component were contrasted with subjects in whom the component was strongly manifested.

Selection of subjects representing the " normal " component was made as follows: company employees and other individuals, actually adjusted to employment or other pursuits, and whose case studies revealed no evidence of psychopathic tendencies, were considered " normal." Subjects who had been committed to institutions for mental disorders were considered " abnormal." This contrast, while somewhat inconsistent with the concept that there exists no sharp dividing line between normality and abnormality, affords a practical distinction, inasmuch as we are concerned with ability versus inability to adjust to social requirements.

The number of subjects studied was 436.

As was to be expected in dealing with so many cases, some of whom were unwilling or unable to cooperate, erratic responses were sometimes observed. These took the form in some cases of stereotyped or patterned responses, such as answering all questions "yes" or all "no," or answering a given number of questions "yes," then a given number "no." Among criminals they took the form of leaving many significant questions unanswered. Some other subjects, without showing stereotypy, leaned strongly toward "yes" responses and yet others toward "no" responses. All of this made necessary the inclusion in our procedure of measures to discover such tendencies when they existed.

After the tests were all given, each question was evaluated by the responses of all subjects. We recorded the responses to every question of the representatives of each component, so that it was known of every question finally accepted, not only that it was significant for a given component, but also that it had little or no significance with regard to any other component.

The tests were then scored, using the question values thus determined. Arrays of the total scores of subjects with a strong degree of a given component (as indicated by clinical records or case studies) were contrasted with arrays of the total scores of subjects lacking the component (similarly indicated), and measures of distribution and difference calculated. From these, measures of strength and weakness of the components were established as test norms.

Validity of the test was then determined by comparison of the test scores with the results of the case studies of the subjects, and was further determined by use of the test on subjects who had not been used in establishing the norms.

Reliability was tested by the split-half method.

A detailed description of statistical procedures and findings is to be found in Appendix I.

Section II. Interpretation.

General Statement.—The interpretation of the scale includes both scoring and evaluating the results obtained by scoring. While scoring has been simplified to the point that it may be done by

skilled clerical help, a better understanding of the various steps in scoring will be obtained by first understanding methods of interpretation. Mechanical directions for scoring may then be consulted in Appendix II.

Before discussing interpretation of the scale, a word of warning is necessary. It is not possible to render an accurate interpretation without thorough acquaintance with Rosanoff's theory of temperament. While this theory is briefly outlined in the present report, and is more fully dealt with in Rosanoff's "Manual of Psychiatry," a reading knowledge of the subject is hardly sufficient. Useful application of the scale requires an adequate background of clinical psychology or psychiatry. No decision should be made in advising a course of action for any subject upon the basis of the showing made in the temperament scale alone, to the neglect of other determinable facts. It is a serious error in procedure to trust any single device used in measurement without careful checking and verification by other data.

Inasmuch as this is a statistical study, the results of scoring are equivalent to statements of probability. This fact leads us to warn users of the scale not to place absolute reliance upon it, or more weight upon statements of probability than they statistically deserve.

There are three steps in interpretation, (1) the evaluation of the quantitative validity of the scale; (2) the diagnosis of temperament, consisting chiefly of identifying predominant components; and (3) the analysis of temperament, consisting of a quantitative statement of the relative strength of each component, a qualitative estimate of the trait syndrome characterizing each component, the interrelations which exist among the components, and the conflicting elements present.

Quantitative Validity of the Scale.—The test of a subject may be considered quantitatively valid if it does not show a tendency toward biased "yes" or "no" answers, if it is answered in a typical manner as shown by component deviations in the profile, and if it does not show too many skipped questions.[1]

Diagnosis of Temperament.—Diagnosis of temperament consists of identifying the predominant component or components. Usually

[1] See Appendix II.

one component appears higher on the profile [2] than any other. This usually fixes the diagnosis, sometimes even when the test is not completely trustworthy quantitatively. Thus, if " M " is highest, the presumption is that the subject has predominantly a cycloid manic temperament.

If a subject has a temperament in which the " normal " component is strong, together with some other component, he receives a double designation, such as " normal-cycloid manic," " normal-hysteroid," etc.

Subjects who receive low " normal " scores in acceptable scales are likely to be psychopathic or psychotic. Such a finding should be corroborated, however, and should be reported in such a way as not to cause undue worry or alarm.

When a subject's score is equally high in two or more components other than " normal," and the scale is quantitatively acceptable, the probability is that the mixture of those components is the true picture of that subject's temperament, and he should be so reported, *e. g.,* as " cycloid depressed-schizoid autistic," " hysteroid-schizoid paranoid," etc.

It is to be noted that individuals having no more than one component emphasized in their temperaments are rather rare. It is not unusual to find one component most strongly emphasized and others secondary in strength.

Analysis of Temperament.—While diagnosis of temperament is significant and valuable, it is not sufficient to give an adequate understanding of the subject. It should in all cases be supplemented by analysis. The latter is of two sorts, quantitative and qualitative.

The former may be obtained from the profile when the subject's scale is quantitatively acceptable. It is to be borne in mind that the minus and borderline scores are as important for this purpose as the plus scores. Minus scores indicate the presence of the component in such low degree that the subject's behavior is apt to be very little influenced by it. Borderline scores indicate the presence in such a degree that it is uncertain whether the individual falls into the " strong " or " weak " category.

[2] As will be seen in the directions for scoring given in Appendix II, subjects' scores are presented graphically by means of a profile, the score for each component being spotted on a vertical line, and the spots joined.

Subjects with borderline scores in a given component, especially in the absence of strong "normal" component, at times may be given to strong exacerbations of behavior characteristic of that component. At such times their behavior may resemble that of subjects whose score in that component is well above the borderline. Thus, a subject whose score in cycloid manic component is borderline and whose score in schizoid paranoid is plus 1, 2 or 3 may give way occasionally to violent temper or some other cycloid manifestation. Ordinarily, however, components of borderline strength have little influence in determining the behavior of the individual.

As a common practice, questionnaire devices for the measurement of temperament approach quantitative presentation from the angle of symptoms. The assumption is that the degree to which any given trait is present in a subject may be determined by the number of symptoms associated with that trait which are elicited in the responses of the subject. This depends, of course, upon the degree to which the symptoms themselves are typical, some being more significant than others. In general, however, a high score in a device calculated to measure temperament results from a large number of typical responses, while, conversely, a lower score results from a smaller number of such responses.

From what has gone before, we can see that even with a high degree of quantitative validity, supported by acceptably normal distribution of scores, the results are not inevitably of the same significance. This arises out of the fact that quantitative showings do not uniformly result from the same behavior in all subjects.

In framing questions it is the object to cover as many characteristic responses and reactions associated with a given trait as may be possible. Subject A may achieve a score representing 50 per cent of the possible responses or score values covering one trait or group of traits. Subject B may score the same percentage by responding typically to the remainder of the questions, or his responses may include an admixture, some of which were answered typically by Subject A, others atypically. If responses are weighted in terms of typicality, a few highly significant responses produce the same score as a large number of typical responses to less significant questions. A score of 50 per cent may, therefore, be achieved by numerous routes, with substantial variation in the symptomatic pattern.

A noteworthy example is found in the case of cycloid subjects. Individuals in whom this component is consistently the deciding factor may have among their manic manifestations pressure of activity, distractibility or disturbance of voluntary attention, and elation. Among their depressive manifestations they may have retardation, dearth of ideas, and sadness. If an individual has any two of these manifestations from either category, his case is recognized as cycloid. Thus, an individual with a tendency toward agitated depression may have sadness accompanied by pressure of activity; while one inclined toward quiet elation may have retardation accompanied by a feeling of great happiness. Both of these conditions are truly cycloid, but they are diametrically different.

Very impressive among our findings was the matter of interrelationships. These appear to underlie sweeping qualitative variation in the behavior of subjects making the same quantitative showing. This would point not necessarily to quantitative inaccuracy, but rather to the evident fact that a given trait may manifest itself either as an asset or as a liability, depending upon the situation in which it comes into play, and upon other factors in temperamental organization. These qualitative differences in behavior effect apparently obtain without inconsistencies in manifestations of the given trait, considered by itself. The same high quantitative showing (with the exception of the "normal" component) was made by a highly successful salesman as by a psychotic subject suffering from manic-depressive psychosis. The conduct of both was typically cycloid, but one was adjusted and one was not. Stated otherwise, both appeared to possess the same quantitative degree of cycloid component, but its significance in terms of behavior differed by reason of the strength of the "normal" component.

It has been noted that, just as the implications of a high quantitative showing may differ, showings in the intermediate range may be significant, and at times even a low score may reveal significant data. The temperament scale measures groups of traits. Any one trait can be operative in an extreme at which it assumes prime significance as a factor in temperamental behavior. A paranoid subject may have a systematized delusional trend, but the conceit mechanism which usually accompanies such temperament may be modified or obscured by feelings of inferiority attributable to a

mildly depressed cycloid component in the same subject. In short, inter-relationships in temperamental organization are such that diagnostic scrutiny from the qualitative angle assumes considerable importance. When we have identified the traits in the subject, and have presented them in quantitative terms, measurement has served such purpose as it can. Prediction of the behavior patterns of the subject depends upon how well we can identify and interpret the inter-operative mechanisms.

This stressing of the importance of qualitative considerations in the study of temperament is not intended at all to disparage the ideal of quantitative measurement. It may be disconcerting to discover that a well adjusted individual possesses a given group of traits in the same degree as that in which they are possessed by a maladjusted individual, but even in such a case the explanation may be apparent quantitatively was well as qualitatively. In another case, points of significance may be represented by a low score, which, if qualitatively considered, presents no inconsistency (*e. g.*, in an individual with an atypical "no" count).

So complex is the structure of temperament that a composite index of unvarying significance seems unlikely of achievement. The student of temperament will find a given component modified by others existing in the same subject. Quantitative measurement of each, considered separately, may reveal the subject's temperament accurately; but the behavior of the subject, or the end result, may be predicted only when inter-relationships are understood and taken fully into account.

LIMITATIONS OF THE SCALE.

Biased Responses.—The most serious limitation of the scale is due to the tendency of some subjects to answer with too many "yes" responses or too many "no" responses. Certain situations tend to aggravate this tendency. In private case work, where the worker has made great transference with the subject, the latter seems anxious to admit every possible symptom in order to assist the diagnosis. In institutional work and in testing applicants for jobs, the opposite tendency may be observed when the subject has been placed on the defensive. As high as 25 or 30 per cent of normal subjects may invalidate their tests under such circumstances. Some subjects seem to be unable to overcome such a tendency.

It is suggested, however, that when a subject does so invalidate his test, he be told of the tendency and be tested again after an interval of a few days.

Age Limit.—The test does not apply to children or adolescents. It has been standardized exclusively on adults. It is known that temperamental changes concomitant with maturation occur as the individual progresses from childhood to adulthood. The authors do not recommend the use of the test with subjects less than twenty years of age until further norms have been ascertained.

Intellectual Limitation.—Feeble-minded subjects do not respond well to the scale because of their inability to understand the questions. Subjects below 70 I Q should not be given the scale; and those between 70 and 80 I Q only with circumspection. Strange to say, some deteriorated subjects respond remarkably well to the scale, even when they consume long periods in completing the answers. When the scale is administered to them, however, care should be used to ascertain that they understand the questions.

Erratic Responses.—As with all such devices, this scale is liable to abuse at the hands of incooperative individuals. Subjects may answer haphazardly, contrary to fact, in a stereotyped manner, etc. All this requires careful scrutiny of the replies and verification of the findings.

General Limitations.—The authors consider the scale itself as a diagnostic aid, and not as a diagnostic criterion. To become the latter, it must be carefully reviewed and verified, as should all such devices. When it is not possible to verify the findings, the results must be regarded as tentative, as are the results of a single intelligence test or a single test of skill.

Section III. The Temperament Scale at Work.

The following cases are selected from case studies conducted under actual working conditions. None of the subjects were in the group used in standardization of the scale. With one exception, the subjects came to the attention of the Personnel Department as "problem employees," slated for discharge. The exception was the "borderline-normal-cycloid-depressed" (Case No. 4), the subject in this instance being an applicant for employment. These cases are illustrative of all components other than the epileptoid,

inasmuch as no epileptoid subject has been encountered in actual personnel work since standardization of the temperament scale was completed.

The profiles and related data are presented as illustrative rather than typical either of results invariably achieved with the scale, or of the simplicity of its application to temperamental problems. We have tested employees whose profiles and obvious temperamental tendencies are similar to those represented in Cases 1, 3 and 6, who are well adjusted to their work and well adjusted in general. Circumstances in such cases, particularly the type of work called for, appear favorable and so long as these situations remain undisturbed we anticipate no temperamental problems. We have encountered no profiles similar to the ones shown in Cases 2, 4 and 5 in which definite problems were not present. Of all the components the hysteroid, for practical purposes, has the least promising prognosis in case work. It has been observed, also, that the probability of difficulty in effecting adjustments increases as other components tend to approach or exceed the showing made in the "normal" component.

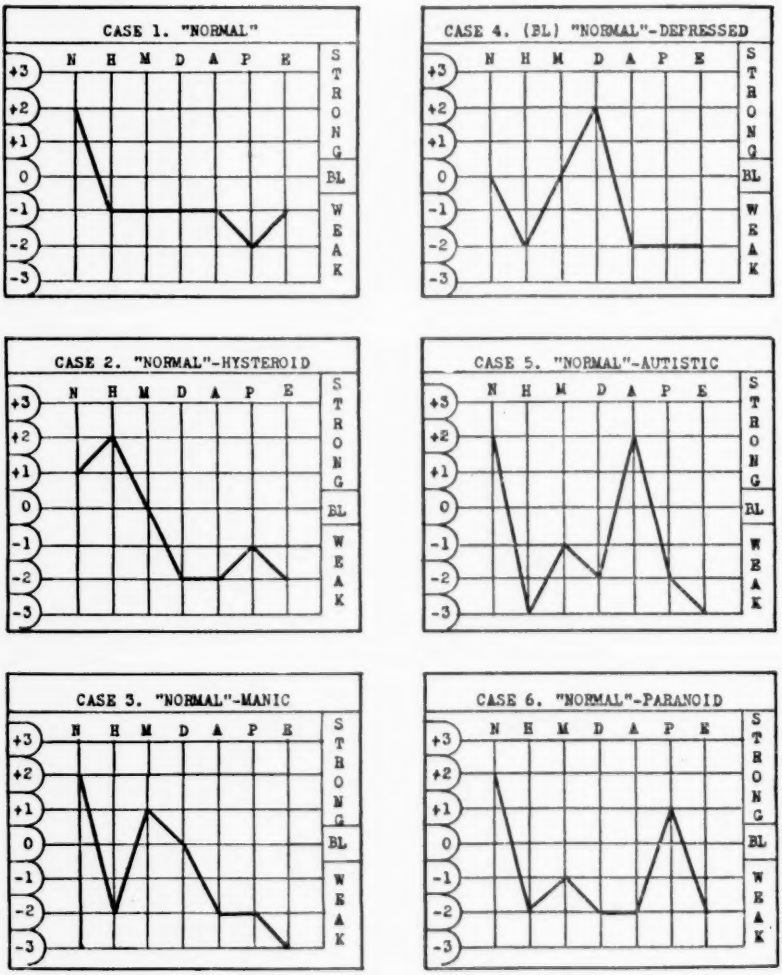
Again, many cases in which the temperament scale has been used are mixed, and involve study of complicated inter-relationships. Our cases here are chosen largely upon the basis of their freedom from admixtures of components, for purposes of clarity. While not all of the problems we have encountered are temperamental, and while the scale has not invariably proven to be more than suggestive of a line of attack upon problem cases, the showing made in the scale in the listed cases was very much to the point.

CASE 1.—Interpretation of Profile: "Normal."

The Subject.—Male; 24 years; mental age, 17 years 7 months.

The Problem.—(Taken from statements of three supervisors.) "Failure to accept responsibility"; "failure to use his ability"; "colorless"; "unresponsive, can perform creditably at mechanical work or difficult clerical work, but has to be pushed"; "no apparent motive or ambition"; "lacks esprit de corps."

Occupational History.—Has readily mastered typing, drafting, principles of accounting, and higher mathematics. He held two positions since age 21, both requiring better than average ability. Actual work has not been criticized, no serious mistakes, no outstanding performances. The main difficulty appears to be lack of purpose or desire fully to utilize a manifestly superior endowment.



ILLUSTRATIVE CASES.

Discussion.—At first glance, the suggestion of indifference would indicate schizophrenic tendencies. Responses in the scale and subsequent questioning, however, reveal neither seclusiveness, suspicion nor particular difficulty with social relationships. Similarly, few paranoid manifestations are present. Social intelligence is high, and is evidenced when he feels there is any call for it. States that he does not enter into things because "over-enthusiasm often leads to unpleasant situations." Feels that one should not "expect too much"; would like advancement, but is not sure that he would be more contented if he achieved it. Feels that over-ambition leads people to do foolish things, is content to "deliver what the job calls for and just wait." Says that things "have a habit of working themselves out if we don't try to force them."

Conclusions.—This subject deliberates carefully and endeavors to pursue a middle course. It is obvious that he is neither particularly selfish, emotional nor imaginative. Has the definite ideal of proceeding calmly, and desires an unruffled existence above all things. So far as can be determined, there have been no disappointments which would account for a "sour grapes" mechanism. Physical examination reveals generally good health. We conclude that we are dealing with an ultra-conservative who is lacking in strong drives, and in whom markedly purposeful effort is unlikely. We therefore can expect acceptable performance, but not enthusiasm for the work or for realization of the abilities suggested by superior intellectual endowment.

CASE 2.—Interpretation of Profile: "Normal"-Hysteroid.

The Subject.—Male: 37 years; mental age, 17 years, 4 months.

The Problem.—(Taken from statements of five supervisors.) "Able in his line, but tricky"; "outstanding when he tends to business, but has to be watched"; "states the truth when it serves his interests, lies when it doesn't"; "overly sharp in his practices," etc. To these comments should be added the factual record of numerous instances where discipline and probationary understandings were undertaken, and several proven instances of dishonesty, some of them, however, within the letter of the law. This subject was discharged for violation of a promise. His very considerable ability at a difficult line of work made it worth while to try to straighten him out, and explains the toleration shown him over a considerable period.

Occupational History.—Consistent advancement for a number of years in increasingly important work. Of top notch ability in his line, and considered quite outstanding from the viewpoint of his work.

Discussion.—The subject possesses an inordinate desire to turn things toward his own ends. An able "politician," he is adept at selecting and cultivating friends, particularly those who are likely to be useful. Apt to encourage subordinates to join him in escapades, so that he has "something on them." Cultivates personal friends on the police force who have "fixed" drunken driving charges for him. Starts whispering campaigns against those who stand in his way. Has been lacking in compunction in personal and domestic relations. Professes high moral sensibilities, simulates contrition when caught, pleads for, and usually gets another chance.

Conclusions.—By all testimony, this subject is manifestly egocentric and possessed of ethically inferior motivation. There appears to be no likelihood of any essential change, or utility in repeated efforts toward adjustment.

CASE 3.—Interpretation of Profile: "Normal"-Cycloid-Manic.

The Subject.—Male; 39 years; mental age, 15 years, 8 months.

The Problem.—(Taken from statements of two supervisors.) "Means well, but should grow up"; "gets a thousand ideas a minute, rushes in with all of them"; "doesn't organize, too many irons in the fire"; "blows up easily, impatient when his men don't step"; "nags his men, keeps after them, keeps them upset"; "too much waste motion"; "gets 'huffy' too much."

Occupational History.—Advanced to minor executive position following 14 years service. Very conscientious in his work, loyal to the organization.

Discussion.—The impatience and multiplicity of ideas in this case, coupled with failure to organize, appeared to be the keynote of the subject's difficulties, and to account for the superficial attitude which had proven objectionable.

Conclusion.—Attention directed to organization of the work, and particularly completion of individual projects before new ones were suggested, helped considerably in this case. The employee was given a complete review of facts, all reports, etc., and was able to recognize the necessity for careful control of his admitted tendency toward over-activity without planning. An excellent adjustment was achieved following several months of checking with the subject and his supervisors.

CASE 4.—Interpretation of Profile: (Borderline) "Normal"-Cycloid-Depressed.

The Subject.—Male; 31 years; mental age, 19 years.

The Problem.—This subject was an applicant. His statement was that he was seeking a new line of work in which he would deal with people. His obviously superior intelligence led us to study his case.

Occupational History.—One of numerous vocational maladjustments, principally in lines of work in which minor advancements had led to assignments in which he worked by himself. His remark on this score was that "getting any place seems to isolate you," and that he "could not stand being lonely." He desired to enter personnel work, though he was not too sure that he could "stand firing people."

Discussion.—The subject admitted a suicidal trend, stated that he had twice attempted suicide. Most of his positions had terminated by his own act in "getting blue and quitting." Previous employers characterized him as able, but state that he "would not stick at one line long enough to tell how good he might prove to be."

Conclusion.—The depressed tendencies appear to be the keynote of this subject's temperament. The case is interesting in that it suggests preventive possibilities in selection. With every sympathy for the applicant's problems, it seemed manifest that serious consideration of his application would amount to borrowing trouble.

CASE 5.—Interpretation of Profile: "Normal"-Schizoid-Autistic.

The Subject.—Male; 26 years; mental age, 16 years, 4 months.

The Problem.—(Taken from statemens of two supervisors.) "A flat failure at his job, should be fired"; "doesn't mix with people which is essential in his work"; "waits for trouble and then can't handle it."

Occupational History.—Very successful at a line in which he worked by himself on consumer's premises, often receiving favorable comment which came unsolicited. Promotion to a line in which to former duties were added various public contacts, even the work at which he had been successful was no longer satisfactory. There was no doubt that he had failed to make good public contacts.

Discussion.—This subject stated that back-door contacts on consumer's premises where there was little to be done except to restore service to good working order had been very easy for him. He stated, however, that when charged with maintaining public relations he was at a complete loss. Back of the counter representing the Company, or at service clubs, he found himself tongue tied. He was very sensitive to jibes even though he knew they were intended in good nature. He admitted that his job had suffered from his inability in this regard, but stated that he knew no way of overcoming this difficulty.

Conclusion.—Following a considerable course of exact instructions, this subject succeeded in adjusting to his job. He was urged to extend himself in being helpful in community undertakings, and instructed to volunteer for committee work, etc. Outsiders changed their attitude toward him very considerably as a result of his efforts. The temperamental problem in this case has been met successfully.

CASE 6.—Interpretation of Profile: "Normal"-Schizoid-Paranoid.

The Subject.—Male; 33 years; mental age, 17 years, 2 months.

The Problem.—(Taken from statements of four supervisors.) "Always 'right,' insufferably conceited"; "arrogant, can't be told anything"; "overly persistent, doesn't know how to compromise"; "antagonizes subordinates, ridicules them."

Occupational History.—Very successful as a special auditor, quick to recognize errors and inaccuracies, manifestly superior ability in this line. Difficulties arose when he was placed in charge of others and given responsibility for a department.

Discussion.—The subject states that his motto is "be sure you are right, then go ahead." Sees no good reason for compromises "if your position is correct." States he bawls out people "when they have it coming." Says, "I can't stand dumbness." Constantly refers to given employees who are "insubordinate," mentioned everyone under his supervision as having been insubordinate at times. Questioned regarding the wisdom of being sarcastic, he considered it in order "if they have it coming."

Conclusions.—This subject had no insight into the fact that his tactics had disrupted an organization which, while in need of some improvement at the time he took it over, was actually functioning reasonably well. He drew

no conclusion from the prevalence of "insubordination" under his supervision. Lacking in social sensitivity, and naive regarding customary give and take in organization work, he could not make a success of an executive assignment. He was unwilling to resume his former work at which he had been successful because it would represent a demotion. In face of the latter alternative, he resigned.

ACKNOWLEDGMENTS.

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APPENDIX I. STATISTICAL PROCEDURES AND FINDINGS.

General Statement.—The problem involved in this study is to evaluate, in terms of statistical probability, the degree to which given components of temperament are present in a subject, as evidenced by his responses to certain written questions.

The elements of the problem, as investigated, are six aspects of validity, as follows:

(1) Whether or not the questions are answered in an unbiased, cooperative manner;

(2) Whether or not the questions are capable of revealing the components under consideration;

(3) Whether or not the mathematical procedures by which the test is validated are the proper ones to use;

(4) Whether or not the scores obtained are capable of revealing differences between persons having a given component and those not having that component, and between persons having a given component and those having other components;

(5) Whether or not the test will reveal the subject as having the components of which he actually is possessed;

(6) Whether or not the test may be trusted to give valid answers with an adequate degree of certainty under various controlled circumstances.

The statistical nature of the study implies that the results obtained from these investigations will be expressed in some statement of chance. For this reason, while results are reported at times in such secondary measures of

chance as correlation, the work of investigation has been done mainly in raw probability. It seems axiomatic that measures least subject to error, and hence the most basic, are those least removed from the data itself, *i. e.*, raw measures.

Validity of Subjects Answers to Questions.—As was mentioned in Part I, we found that some of the subjects were either unwilling or incapable of answering the questions in a valid manner. There seems to be no escaping this situation in scales of the type we are using. As was stated, great care was used during the testing to discover such subjects. These were compared with the valid cases, and the results are shown in Table I.

TABLE I.

BIASED "YES" AND "NO" SCORES.
(Scored in Number of "No" Responses.)

	Rejected cases with low number of "No's."	Accepted cases.	Rejected cases with high number of "No's."
Medians	110.4 ± 1.7	168.3 ± 1.3	219.5 ± 3.3
Skew	.041	.072	.000
$PE_{diff.}$		2.11	3.41
Critical Point		138.00	203.50
Accepted Range		145 to 193	
Doubtful Ranges	132 to 144		194 to 214

From this table it may be seen that a scale which has fewer than 145 "No" responses or more than 193, while not inevitably invalid, presents questionable material. A scale answered with from 132 to 144 or from 194 to 214 "No" responses presents doubtful material which must be further verified before acceptance. Scales with less than 132 "No" responses or more than 214 are usually so badly biased as to be unacceptable.

Approximately 25 per cent of normal subjects and 45 per cent of abnormal subjects manifest a tendency to biased responses in marked degree.

Early in the testing, a problem arose out of the tendency of some subjects to skip certain questions. To ascertain the effect of such a practice, subjects were at first given permission to skip when they wished. As a result, this tendency was found to be present chiefly among hysteroid subjects, who seemed to recognize and to wish to avoid the ethical implications of some questions. Later, all subjects were requested to answer all questions, even if guessing were required. Comparisons showed that no essential change was to be noted in the validity of the tests when tests with a number of skipped questions were scored by adding half of the value of each skipped question. This is equivalent to the method of subtracting "wrongs" from "rights" and comparing the proportion answered with the total number of questions of the test. However, scales in which more than 25 questions have been skipped, or more than 10 of any given component, should be discarded.

The provisions made to deal with the tendency of some subjects to answer with too many "Yes's" or "No's" and to skip questions have the effect of increasing the certainty with which the scale may be interpreted. It is to be noted that biased "Yes" or "No" answers, and stereotyped answers are to be expected in normal as well as abnormal subjects. Methods of dealing with their scores are discussed in Section II.

Validity of the Questions.—Mention has been made of the fact that, in evaluating the items of the test, every question was examined for answers made to it both by those having the component in marked degree and by those in whom the component was relatively absent, and for answers made by subjects having the component as contrasted with those having other components.

The questions were evaluated by a method akin to tetrachoric correlation and checked by tetrachoric correlation itself. For each question a tetrad was set up for every component, with the responses of individuals having a high degree of the component scored plus and those in whom the component could not be discovered scored minus. For the purposes of tetrachoric correlation, a "yes" response was considered plus for the other axis, and "no" minus.

The method of setting up these tetrads is illustrated below (the numbers representing percentages):

Question Number		N+	N−	H+	H−	M+	M−	D+	D−	A+	A−	P+	P−	E+	E−
120	Yes (+)	4	50	28	23	23	21	27	14	21	35	25	25	92	2
	No (−)	96	54	72	76	75	78	73	86	79	63	75	75	9	96

It may be observed that the only true tetrad which appears for this question is to be found in the epileptoid component, almost all epileptoid subjects answering it "Yes" and almost all non-epileptoid subjects answering "No." In the other components, the answers are divided between "Yes" and "No," with a definite emphasis upon the "No."

The results of these set-ups were found to be very mixed, inasmuch as hardly any subjects are discoverable who do not have some emphasis on more than one component; and it was necessary to find a means of ascertaining the simple relationships involved.

The first step in doing this was to work out the contingency of the occurrence of each component with every other. This is given below.

It may be seen from this table that none of the components has a high chance of occurrence with any other. It follows, therefore, that in the tetrad set-ups we have made, the most frequent response to a valid question will fall under the proper component. In the case of such a question, however, the tallied responses under other components will be too high, since tallies were made for all plus and minus components under which the subject could

be classified.* Likewise, the number of tallies under the proper component will be too low, since it would receive negative tallies when it occurred with the other components. For example, in the case of a subject classified by case study as N+H+M−D−, every question he answered "Yes" because of the influence of his "normal" component would receive a tally also under H +, making the count there one too high. Similarly, if a question were answered "No" under the influence of the hysteroid component, the "normal" component count would be to that extent penalized.

TABLE II.

CONTINGENCY OF OCCURRENCE OF EACH COMPONENT WITH EVERY OTHER COMPONENT IN THE SUBJECTS EXAMINED.

(Based on Case Studies.)

	H+	H−	M+	M−	D+	D−	A+	A−	P+	P−	E+	E−
N+	.14	.44	.31	.28	.23	.46	.24	.22	.18	.42	.00	.55
N−	.28	.40	.45	.25	.39	.21	.19	.38	.40	.37	.56	.14
H+	.....		.28	.32	.28	.32	.12	.26	.41	.16	.20	.31
H−	.....		.45	.34	.24	.43	.42	.36	.36	.42	.32	.39
M+	.....		.....		.67	.08	.22	.40	.35	.48	.22	.36
M−	.....		.....		.03	.58	.20	.28	.36	.25	.28	.36
D+	.....		.....		.....		.39	.22	.31	.40	.27	.31
D−	.....		.....		.....		.10	.44	.35	.26	.25	.49
A+	.....		.....		.....		.....		.34	.12	.22	.34
A−	.....		.....		.....		.....		.39	.28	.47	.24
P+	.....		.....		.....		.....		.....		.25	.33
P−	.....		.....		.....		.....		.....		.30	.45

In order to correct for this overweighting, an algebraic formula was worked out, in which sigma represents the sum; p, the proportion of answers obtained; c, the contingency of valid components with invalid; t, the true ratio of the valid component; and a, the obtained ratio of the valid component:

$$t = \frac{6a - \Sigma cp}{6 - \Sigma c}$$

* In classifying the responses to each question, a subject was considered to have a component in a plus degree when the case study or clinical record showed that the component was strongly marked and of significant influence in his behavior. He was considered to have the component in a minus degree when its presence was not apparent. When the component was present but in such a weak degree as to have little influence on his behavior, he was considered to have it in a zero degree. Thus, a subject might be classified as N+H+M−D−, indicating marked presence of the "normal" and hysteroid components, virtual absence of the cycloid components, and slight and not very significant presence of the schizoid and epileptoid components. In tallying the responses of such a subject in the tetrads, if an answer was "Yes," a tally was placed after "Yes (+)" under N+, H+, M−, D−. The effect of such a procedure was to contrast the responses of individuals strongly marked by the component with those of other subjects in whom its effect was almost or altogether absent.

From the corrected tetrads, the contingency of each valid answer was calculated, reduced to a statement of chance (for example, 2.5 to 1), and the logarithm of the chance taken.

A check-up by means of partial correlation of the uncorrected responses to questions by subjects having the various components showed very little difference from the results obtained by use of the algebraic formula. Accordingly, the values discovered through its use were accepted as final values for the questions.

From the product theorem of chance, we know that a subject who answers several questions which are valid for a given component will have the probability of possession of that component to the extent of the product of the chances of those questions.* For example, a subject who answers three questions which are valid for a given component, one of which has a chance of 1.5 to 1, the second also 1.5 to 1, and the third 2 to 1, will have 4.5 chances to 1 ($1.5 \times 1.5 \times 2 = 4.5$) of possessing that component. From this we see that a good scoring of the questions is to be obtained, not by adding chances, but by adding the logarithms of the chances, since this is equivalent to multiplying the chances.

For that reason, questions were assigned values in what we termed log scores. Further to simplify the procedure, we divided the range of the logarithmic scale into five parts, assigning 1 as the value of the lowest fifth; 2, the next fifth; and so on. This enabled us to state our question values in simple fashion. Table III gives the question values thus determined.

TABLE III.

QUESTION VALUES EXPRESSED IN CHANCES.

Number of chances to one.	Log score. (Question value.)	Equivalent coefficient of correlation. (Positive.)
1.26 to 1.99	1	.557 to .666
2.00 to 3.16	2	.667 to .877
3.17 to 5.00	3	.878 to .943
5.01 to 7.94	4	.944 to .975
7.95 to 12.68	5	.976 to .990

Of the 318 questions included in the scale, 159 have values given in this table.

The Validity of the Mathematical Procedures.—After the questions were validated, we examined the data obtained in order to check our mathematical processes. Although the validity of the components is in general acceptance because of prior investigations, our work in testing our mathematical procedures furnishes still further corroboration.

* This is presuming that traits are discrete. The fact is that traits are interdependent to some extent. This scoring device, therefore, represents merely a principle of scoring, not an accurate statement of chance.

Our first step was to note the frequency with which subjects, classified according to temperament, answered all valid questions in the affirmative. For this purpose the classification of the questions themselves was ignored. The frequency with which subjects of each classification used the "yes" response in answering questions valid for any component is given in Table IV.

TABLE IV.

FREQUENCY OF AFFIRMATIVE RESPONSES TO VALID QUESTIONS.

Classification of subjects.	Mean ± PE (per cent).	Sigma ± PE (per cent).
Normal	42.48 ± .92	17.16 ± .65
Hysteroid	50.88 ± .92	17.25 ± .65
Cycloid Manic	42.29 ± .78	14.52 ± .55
Cycloid Depressed	52.74 ± .87	16.29 ± .62
Schizoid Autistic	51.60 ± 1.02	19.14 ± .72
Schizoid Paranoid	50.22 ± .77	14.46 ± .55
Epileptoid	46.56 ± .84	15.66 ± .59

In this table we have indicated that the answers of any given group of subjects to the valid questions taken as a whole falls close to a chance response. In other words, most subjects, no matter what what their temperamental tendencies, answer approximately half of the questions "yes" and the other half "no." This is a condition which is very much to be desired, inasmuch as it indicates that the answers by individuals who have certain components then represent an evenly distributed selection.

The tendency of subjects, classified by temperamental component, to answer questions valid for other components than their own, is shown in Tables V and VI. They indicate, for example, how often a "normal" subject answers hysteroid questions in hysteroid manner, etc.

Table V gives correlations of the zero order, that is, with the effect of irrelevant components not partialled out, *i. e.*, r_{12}, designated as r_{NH}, r_{NM}, etc.

TABLE V.

CORRELATIONS BETWEEN RESPONSES OF SUBJECTS, CLASSIFIED BY COMPONENT, TO ALL VALID QUESTIONS.

(Zero Order.)

	Normal.	Hysteroid.	Cycloid manic.	Cycloid depressed.	Schizoid autistic.	Schizoid paranoid.
Epileptoid	.044	.177	.242	.056	.112	.406
Schizoid Paranoid	.551	.531	.497	.168	.387	...
Schizoid Autistic	.438	—.194	.505	.635	...	...
Cycloid Depressed	.535	.032	.887	...	...	...
Cycloid Manic	.694	.187	...	...	...	...
Hysteroid	.318	...	...	...	...	...

Table VI gives partial correlations of the fifth order, that is, with the effect of all other components partialled out, *i. e.*, $r_{12.3456}$, designated $r_{NH.MDAPE}$, $r_{NM.HDAPE}$, etc.

TABLE VI.

CORRELATIONS BETWEEN RESPONSES OF SUBJECTS, CLASSIFIED BY COMPONENT, TO ALL VALID QUESTIONS.
(Fifth Order).

	Normal.	Hysteroid.	Cycloid manic.	Cycloid depressed.	Schizoid autistic.	Schizoid paranoid.
Epileptoid	—.270	.013	.080	.070	—.131	.402
Schizoid Paranoid.	.202	.421	.031	—.052	.448	...
Schizoid Autistic..	.234	—.490	—.250	.448	...	...
Cycloid Depressed.	—.294	.016	.842	...	...	...
Cycloid Manic	.533	.033	...	...	...	...
Hysteroid	.142	...	...	...	...	...

From these coefficients of correlation, it may be seen that there is little correspondence between subjects of varying temperamental tendencies in their answers to the questions, with but one exception; that is, cycloid manic subjects agree with cycloid depressed subjects to the extent of 45 per cent better than chance ($r_{MD.NHAPE}$ = .842). Of the remainder, the highest correlation is that of normal subjects with cycloid manic subjects, with an agreement 15 per cent better than chance ($r_{NM.HDAPE}$ = .533); and the next, schizoid autistic subjects with cycloid depressed subjects and with schizoid paranoid subjects, with agreement 12 per cent better than chance in both cases ($r_{12.3456}$ = .448). The greatest contrast is that of hysteroid subjects with schizoid autistic subjects, with 13 per cent better than chance that the results will be opposite ($r_{HA.NMDPE}$ = —.490).

The high correspondence between the two types of cycloid subjects, manic and depressed, is to be expected, since these conditions are known to be closely related. It may be pointed out, however, that 45 per cent better than chance indicates correspondence in but 72.5 per cent of the cases, a fact that makes differentiation worth while.

There are several other interesting correspondences and contrasts, such as that between hysteroid subjects and schizoid paranoid subjects, but these need further study before they may be interpreted.

The conclusion to be drawn from these partial correlations is that, as far as is evidenced by the subjects upon which the test is standardized, the components of temperament are separate entities. This is not final evidence, however, for the reason that the questions used were standardized upon these very subjects. The partial correlations may be interpreted, therefore, rather as a verification of the validity of the mathematical procedures used in the standardization of the scale.

The Validity of Distinctions in Temperament Revealed by the Scale.—The scale appears capable of showing distinctions in temperament when arrays

of the scores of all subjects determined by case study to have a high degree of a given component are contrasted with those of subjects in which the component could not be discovered. The results of these contrasts are shown in Table VII.

TABLE VII.

DISTRIBUTIONS OF SCORES OF SUBJECTS HAVING GIVEN COMPONENTS COMPARED WITH THOSE OF SUBJECTS NOT HAVING THE GIVEN COMPONENT.

(Scaled in Log Scores.)

Classification of subjects.		Median	Q	PE_{md}	Skew	Critical point.	PE_{diff}
Normal	+	50.25	5.65	.84	.079	38.50	1.06
	−	26.17	4.41	.65	−.002		
Hysteroid	+	63.65	10.13	2.03	.223	44.50	2.17
	−	24.79	5.79	.77	.036		
Cycloid Manic	+	37.95	4.40	.59	.064	25.00	1.01
	−	16.00	3.94	.82	.000		
Cycloid Depressed	+	60.50	6.00	.95	−.042	38.50	1.44
	−	19.50	6.30	1.08	−.032		
Schizoid Autistic	+	62.88	5.34	1.07	−.124	41.50	1.28
	−	23.69	4.63	.71	−.111		
Schizoid Paranoid	+	34.55	4.12	.52	.110	26.08	1.02
	−	17.50	5.48	.85	.041		
Epileptoid	+	40.50	4.38	.89	−.143	32.25	1.13
	−	19.50	4.70	.69	−.021		

From this table it may be seen that the distributions of the plus and minus subjects are discrete. In fact, in the hysteroid, cycloid depressed, schizoid autistic, and epileptoid distributions, the plus distributions do not overlap the minus distributions at all, while in the other distributions the overlapping is slight.

It is to be noted that the skewedness of all of these distributions is small. Odell* gives the amount of skew permissible in the formula we have used ($j = \frac{Q_3 + Q_1 - 2md}{Q_3 - Q_1}$) as plus or minus one. In no case here does the

* Odell, C. W., *Educational Statistics*. Century Co., New York, 1925.

skew exceed 22.3 per cent of that amount. Thus we see that the distributions are highly symmetrical.

The Norms for the Scale.—These distributions furnished us with the norms to be used in interpreting the subjects' temperaments.

For convenience, the range of scores for each component was divided into seven degrees of strength. These are presented in Table VIII.

TABLE VIII.

THE VARIOUS STRENGTHS OF COMPONENTS AS REPORTED.

Degree		Explanation
Strong ...	+3	Strength of component equivalent to that of very strong "plus" subjects.
	———	Dividing line: Plus ½ S. D. from median of "plus" subjects.
	+2	Strength of component equivalent to that of average "plus" subjects.
	———	Dividing line: Minus ½ S. D. from median of "plus" subjects.
	+1	Strength of component equivalent to that of weakly "plus" subjects.
	———	Dividing line: Plus 3 $PE_{diff.}$ from critical point.
Borderline 0		Strength of component falls in range between "plus" and "minus" subjects.
	———	Dividing line: Minus 3 $PE_{diff.}$ from critical point.
Weak ...	−1	Strength of component equivalent to that of weakly "minus" subjects.
	———	Dividing line: Plus ½ S. D. from median of "minus" subjects.
	−2	Strength of component equivalent to that of average "minus" subjects.
	———	Dividing line: Minus ½ S. D. from median of "minus" subjects.
	−3	Strength of component equivalent to that of strongly "minus" subjects.

The norms for each component, together with the degrees of strength to which they correspond, are given in Table IX. This table is to be read: A log score in "normal" component of 55 or more is equivalent to "plus−3" degree or "strong"; from 46 to 54, as "plus−2," also "strong"; etc. A log score in hysteroid component of 72 or more is equivalent to "plus−3" degree or "strong"; etc.

TABLE IX.

NORMS.

Degree.	Normal.	Hysteroid	Cycloid manic.	Cycloid depressed.	Schizoid autistic.	Schizoid paranoid.	Epileptoid.
+3	55–..	72–..	42–..	66–..	68–..	38–..	52–..
Strong..... +2	46–54	56–71	35–41	56–65	59–67	32–37	44–51
+1	43–45	51–55	29–34	44–55	46–58	30–31	37–43
Borderline.....	35–42	38–50	22–28	34–43	38–45	24–29	29–36
−1	30–34	30–37	20–21	25–33	28–37	22–23	24–28
Weak..... −2	23–29	20–29	13–19	15–24	20–27	13–21	16–23
−3	0–22	0–19	0–12	0–14	0–19	0–12	0–15

Component Deviations in Profile.—It was discovered early in the study that individuals who were inclined to answer the questions with a high proportion of "no" responses had scores which fell preponderantly in the minus—2 and minus—3 "weak" categories. In other words, their profiles were low and rather flat. On the other hand, those who answered with a low proportion of "no" responses had scores which fell preponderantly in the plus—2 and plus—3 "strong" categories. Their profiles were high and flat. It was also observed that the "normal" score was usually too low with a high flat profile and too high with a low flat profile. The explanation for the latter phenomenon is undoubtedly that the "normal" represents in so many instances a control of the behavior occasioned by other components.

These facts were examined statistically and were found to afford a convenient check on the manner in which the subject responds to test conditions.

There are seven intervals on the profile scale, numbered from +3 to −3. With "normal" disregarded, the possible algebraic sum of these intervals ranges from +18 to −18. When arrays of these sums were set up, they were found to comprise three separate groups, invalid tests of the high flat type comprising one; invalid tests of the low flat type another; and valid tests another between the first two. The results are summarized in the following table:

TABLE X.

COMPONENT DEVIATIONS IN PROFILE.

(Exclusive of "Normal" Scores.)

	Excessively high group.	Intermediate (doubtful).	Acceptable group.	Intermediate (doubtful).	Excessively low group.
Median	+7.2 ± .3	.....	−3.2 ± .3	.....	−11.5 ± .4
Q	2.4	.....	1.9	.....	1.7
PE_{diff}	.....	.29	.....	.44	.....
Range	+4 to +18	+1 to +3	0 to −5	−6 to −9	−10 to −18

These deviations have a high but not perfect inverse correspondence with the "no-count." Therefore, when a scale shows an unfavorable component deviation, the "no-count" should be taken. If both criteria are unfavorable, the test is quantitatively inaccurate; but if either falls in the acceptable range, the chances are in favor of the scale's being acceptable.

The Validity of the Scale.—Validity as determined by comparison of scores with case studies and clinical records of the subjects on whom the scale was standardized is very high, when biased scales are eliminated. Only .355 per cent of the cases showed discrepancy. This is equivalent to 99 per cent better than chance, or a coefficient of validity of .999. Inasmuch as these results are obtained from subjects used in the standardization, they do not represent a true measure of validity, but rather a verification of the mathematical processes used.

Validity as determined by comparison of test scores with case studies of subjects not used in standardizing the scale is $r = .98$, when biased scales are eliminated. When biased scales are included, $r = .81$. Inasmuch as a means of discovering biased scales objectively is afforded, these coefficients indicate measurement with a considerable degree of accuracy.

The Reliability of the Scale.—Coefficients of reliability, as measured by the split-half method, with allowance for attenuation, for each component of temperament, are as follows:

Normal	$.82 \pm .02$
Hysteroid	$.85 \pm .02$
Cycloid Manic	$.73 \pm .03$
Cycloid Depressed	$.88 \pm .01$
Schizoid Autistic	$.88 \pm .01$
Schizoid Paranoid	$.70 \pm .03$
Epileptoid	$.75 \pm .02$

The split-half method of measuring reliability was used because it is known that subjects, especially of cycloid temperament, are likely to be characterized by changes of mood; so that measurement at different times would introduce an unwarranted error.

It is the opinion of the authors that the use of the split-half method itself introduces some error, inasmuch as the trait syndrome of persons with the same component predominantly high is often not similar. Inasmuch as traits could not be equated between the first and second half of the test, a difference of the sort mentioned would tend artificially to lower the correlation.

It is believed, therefore, that the validity of the scale is a better measure of its value than the reliability.

APPENDIX II. ADMINISTRATION AND SCORING.

Administration.—The temperament scale is self-administering, directions being included at the beginning of the form.

It may be applied either individually or to groups.

No strict time limit need be observed. A record of the time begun and time finished is taken, however, so that the subject will feel it important to work

as rapidly as possible. The time a subject may take varies from 30 to 90 minutes, with an average of about 55 minutes. Except in the case of epileptoid subjects, whose tendency to work with meticulous deliberation causes them to take longer than other types of subjects, those who take longer than 90 minutes usually fill out scales which prove to be invalid.

In presenting the scale to the subject, the following formula should be used verbatim: "This is a test of the ways you think and act. Read the directions at the beginning of the test. 'Here are the questions you are to answer. Answer by underlining either yes or no. Do not underline both. Read each question carefully once, and underline as you first seem inclined. Do not skip any questions.'" The examiner should watch the subject as he begins to fill out the answers. Some subjects may attempt to mark the responses in another manner than by underlining. Request such subjects to answer in the standard manner.

In general, avoid talking with the subjects. When questions are asked, reply as briefly as possible. Preferably refer the question to a time after the test is completed. At no time is it permissible to discuss the meaning of any question with a subject during or before a test.

After the subject has finished marking his answers, look the scale over rapidly for skipped pages, skipped questions, doubly answered questions, the filling in of the blanks in the heading, etc. If necessary, question the subject about these, and ask him to fill in skipped pages. Do not discuss any of the questions within earshot of any subject who has not finished the test.

Scoring.—Strips have been prepared to expedite the work of scoring the tests. The values of all valid "yes" responses appear in the left column of the strips, and the values of all valid "no" responses in the right column. When a question is answered "Yes," and a "yes" value is given for that question, write the symbols with the subscripts in the right margin of the page after that question. Similarly, when a question is answered "No," and a "no" value is given on the scoring strip, write the symbols and the subscripts in the margin after the question.

For example, if question 1 is answered "Yes" or "No," do not write anything in the margin after it. If question 3 is answered "Yes," write "D_1A_3" in the margin; if "No," make no mark in the margin. If question 7 is answered "Yes," write "P_2E_2" in the margin; if answered "No," write "N_2" in the margin.

When questions are skipped or are answered both "Yes" and "No," write in the margin all the symbols with their subscripts, followed by "sk." For instance, if question 7 is skipped, write "$P_2E_2N_2$—sk."

When all the questions have been scored, tally them in the respective tally blocks (which are furnished with the tests). Tally in the column indicated by the symbol as many times as is indicated by the subscript. For example, "D_1A_3" is to be tallied once under cycloid depressed (D) and three times under schizoid autistic (A); "E_4" would be tallied four times under epileptoid (E), etc.

Skipped questions are to be tallied in the lowest line of blocks, recording the full value.

After all questions are tallied, add the tallies in the upper blocks, and to this sum add half the total of the tallies in the lowest blocks (representing the skipped questions). Enter the results in the space marked "R.S." (raw score). Then refer to the table of norms (p. 39) and find the profile value for each score. For example, if a subject has a raw score of 48 in "normal," the profile value is +2, since 48 falls between 46 and 54. Similarly, if the raw score in hysteroid is 32, the profile value in hysteroid is −1. In a similar way, find the profile values for all the components. Spot the profile values in the proper intersections on the profile sheet, preferably in color, and draw lines connecting them. The result is the profile of the subject's temperament.

After the scale has been profiled, obtain the algebraic sum of the deviations of all components except "normal," taking account of pluses and minuses, and refer to Table X (p. 40) to see if the score is quantitatively acceptable.

If the deviation falls outside of the range, 0 to −5, count the number of questions answered "No" in the entire scale, regardless of values. If that number falls between 145 and 193, the test is acceptable.

If both the sum of the component deviations and the "no-count" fall in the borderline or doubtful groups, especially when one or both are within the critical points, the scale is probably acceptable. When both these measures fall in the unacceptable categories, or one falls there while the other is borderline or doubtful, the test is probably quantitatively unacceptable.

APPENDIX III. THE QUESTIONS WITH THEIR VALUES.

		Yes	No
1.	Do you like to meet people and make new friends?		A_2
2.	Have you ever had to fight a tendency to become downhearted or discouraged?	D_2	
3.	Do you ever have to fight against bashfulness?	D_1A_3	
4.	Do you find it difficult to maintain your opinions?		A_1
5.	Does noise readily waken you from sleep?	N_2	E_1
6.	Have your hardest battles been with yourself?	P_2E_2	N_2
7.	Do most people make friends mainly because friends are likely to be useful?	M_2D_2	
8.	Do you find yourself at times full of energy, and at others find it hard to get going?	D_2	
9.	Have you encountered some problems that are so full of possibilities that you have been unable to make up your mind about them?		A_2
10.	Would you mind work which would mean that you would be alone much of the time for long periods?	P_2	
11.	When someone expresses an ignorant belief, do you try to correct him?	E_4	
12.	Have you ever fainted from any cause other than heart disease?		N_3
13.	Do you sometimes have to stop and think about some step you are about to take?		A_2
14.	Have you several times been unjustly punished?	M_2D_3	
15.	Do you like a great deal of variety in your recreations?	A_2	
16.	Do you frequently find yourself worrying about something?		P_2E_2
17.	When you go to a party, are you more likely to sit by yourself, or with just one other person, than to join in with the crowd?	E_3	
18.	Does it take a lot of argument to convince most people of the truth?		A_1
19.	Have you ever had periods in which you were unaware of what you were doing, or what was going on about you, but in which you carried on activity?		
20.	Is it unusual for you to express strong approval or disapproval of the actions of others?		

	Yes	No
21. When you are cornered, do you tell that portion of the truth which will do you no harm?	H_2	
22. Do you sometimes find yourself so restless you can scarcely sit still?		
23. Do you refuse to play some games because you are not skillful at them?	D_2A_2	
24. Have you often had to take orders on work from someone who didn't know as much about it as you did?	P_2	
25. Do you have inspirations which drive you to the accomplishment of important tasks?		
26. Do you find it difficult to make allowances for people whose conduct seems wrong?		
27. When a person cannot escape dealing with another who is likely to cheat or deal sharply, is it wrong to beat the second person at his own game, with his own methods?		H_3
28. Has more than one person called you hot-headed?		N_1
29. When you hear a good story do you usually pass it on?		
30. Have you several times made the mistake of thinking too little of your ability to put things through?	D_2	
31. Do you find it impossible to take people completely into your confidence?	A_2	E_2
32. Have you at times been among the last to abandon a lost cause?	N_2	
33. Have you ever had the experience of having your mind seem to act with such great clearness and precision that even problems which had been vexing you were easily solved?		
34. Do you like to let people know where you stand on important questions?	M_2	
35. Do certain animals make you nervous?	D_2	
36. Have you ever been punished because a friend has "double crossed" you?	H_2P_2	
37. Should a man always boost his home town against all others?	H_1	
38. Do you like variety in your work?		
39. Are you so made up that your feelings are more intense than those of most people you know?	A_1	
40. Have you sometimes felt listless or tired for no particular reason?	M_2D_2	
41. Do you like to have the leisure to sit down and indulge in reverie?		
42. Have you sometimes had the feeling that people were talking about you behind your back?	H_2	
43. Have you ever been interested in strange and unusual customs?		
44. Have you ever settled a quarrel between two or more of your personal friends?		
45. Do you get less use than you should out of things which belong to you, because you find it difficult to take proper care of them?		
46. Do you enjoy trying to pull the wool over people's eyes with yarns and unlikely stories?		
47. Have you ever been snapped out of a spell in which you were feeling low, when something exciting has happened?	M_2	
48. Do you dislike having to rush in your work?	A_1P_1	
49. Do you like to be where there is "something doing" all the time?		
50. Do you find it difficult to make decisions?		
51. Are you quite often behind the times in the gossip of the group to which you belong?	A_2	
52. Have you received criticisms which hurt you, but which you nevertheless welcomed, because they were of real value in self-improvement?		
53. Do you have some difficulty in adding a long column of figures?		
54. Do you think most people would be crooked if they had a chance?		
55. Are you strongly moved by an inspirational talk or address?		
56. Does it make you nervous to be shut up in a small room?		
57. Have you ever had the feeling that strangers were looking at you critically?	A_2	
58. Have you often met people who were supposed to be experts in your line of work, who really didn't know as much about the work as you did?	H_1P_2	N_1
59. When someone keeps irritating you, do you have a tendency to say nothing for a long time, and then when you can stand no more "let him have it" all at once?		
60. Are you inclined to try to win other people to your religious views?		

	Yes	No
61. Does your life proceed evenly and on the whole without ups and downs?	N_2	
62. Are you quite often disappointed in other people?	P_2	
63. As a youngster did you on several occasions play sick?		
64. Do you get mad easily and soon get over it?	M_2D_1	
65. Do you often have to check up to be sure you have locked a door, put out a light, or something of the sort?		
66. When you are disappointed in someone or something, can you explain away your disappointment, and be just as happy as you were before?		
67. Do you sometimes hang onto an undertaking to the point that people lose patience with you?	P_2	
68. Have you ever prevented a quarrel between your friends?		
69. Do you avoid discussing matters on which you feel strongly in order not to say too much?		
70. As a youngster did you have a period in which you engaged in petty thievery?	H_2	
71. When you are feeling very happy and active, does having someone around who is feeling low hold you back?	M_2D_2	
72. Do you have a tendency to have not more than one confidant, and to be very close mouthed with all others?	A_2P_1	
73. Have you lost out in several undertakings by not making up your mind quickly enough?	D_3A_2	N_2
74. Have you ever caused a quarrel between friends by something you let slip?		
75. When you play cards do you prefer to play for money?	H_2	
76. Do you think that the people about you fully appreciate your ability, and give you a sufficient opportunity to develop it?		
77. Does noise bother you a great deal when you are trying to think?		
78. Do you seem to have more than your share of aches and pains?		
79. Are you very much interested in books of travel?		
80. Have you at times felt called upon to pay back someone who has done you an injury, not so much for revenge, but for the principle of the thing?	P_2	N_1
81. Did you ever go into a convulsion when you were a child?		
82. Have you at times found yourself hard put to pay for expensive things you have bought on credit?		
83. Are there several important questions upon which you have not as yet declared yourself, although most of your friends have done so?		
84. When you were in school, were you at times sent to the principal for cutting up?	H_3	
85. When you are invited out by people you do not especially like, are you apt to make up excuses for not going?		E_2
86. Do you like to liven things up with practical jokes or witticisms?		
87. Do you frequently ask other people for advice?	M_2	
88. Do you have a day dream life which you keep to yourself?	H_1	
89. Are there certain people whom you dislike so much that you are inwardly pleased when they are catching it for something they have done?		
90. Do you spend a long time thinking out a problem before you undertake it, and then follow your plans almost to the letter?		
91. Would you be willing to overlook many faults in a friend rather than lose his friendship?		
92. When people make silly or ignorant remarks on subjects upon which you are informed, do you try to set them right?	P_1	
93. Does it make you nervous to find yourself alone in a large room?		
94. Do you think many people would tell a lie to gain advancement?	H_2P_2	N_1
95. Are there times when you feel especially alert, and can make up your mind much more readily than at others?	M_2	
96. Do most of the people you meet interest you?		
97. Have your plans frequently seemed so full of difficulties, that you had to abandon them?	D_2	N_2
98. When an unpleasant situation bothers you, do you generally try to think of something more pleasant?		
99. Have you several times worked under people who seemed to have things fixed so that they would get the credit for good work, and those under them would be blamed for mistakes?	H_1P_2	N_2

	Yes	No
100. Were you at some time in your life inspired to a program of advancement or duty, which you have since consistently followed?	P_2	
101. Have you found at times that you have hurt the feelings of other people, by not being careful enough of what you said or did?		
102. Does it give you satisfaction to see a crook beaten at his own game?		
103. Do your worries seem to disappear when you get with a crowd of lively friends?	M_2	
104. Do you often have to "sleep over" a matter before you decide what to do?	M_2D_2	H_1
105. Are you apt to hide your feelings in some things, to the point that people may offend you without knowing it?	A_2	E_2
106. Do you find that many people are so unreasonable that it is hard to talk to them?		
107. When you engage in an undertaking, do you very patiently work out the smallest details, as well as carefully planning the larger aspects of the project?		
108. Do you have any friend whom you like in spite of the fact that he takes advantage of you?		
109. Do you feel certain in your own mind that there is only one true religion?	E_2	N_2
110. Do you become enthusiastic over new things or new plans?		
111. If you were to find yourself in trouble along with several friends, would you agree with them that all should tell the same story?	H_3	
112. Do you find yourself at times very cheerful, and at others very "blue"?	M_3D_3	
113. Do you find it difficult to concentrate in a room full of people, or in a place where there is a lot of talking or other noise?		
114. Do you like to know all about the people with whom you work?		
115. Do you at times see so many sides to questions, that you have difficulty in making up your mind?		
116. Have you at times, when you were not actually sick, needed to take extra rest during the day?		
117. Are you inclined to be uncomfortably self-conscious?	A_5	
118. Do you prefer to work alone, and be held solely responsible?		E_2
119. Have you at times stood in the way of people who were trying to put something over, not because it amounted to much, but on the principle of the thing?	P_2	M_2
120. Have your activities ever been interrupted by "blank" or unconscious periods?	E_6	
121. Is it almost impossible for another person to get you into a heated argument or discussion?		
122. Does the fact that nearly everybody does some given thing, usually prove that it is a good thing to do?		
123. If you were in trouble in which several of your friends were as much at fault as you were, would you rather take the whole blame than give them away?	H_2	E_2
124. When you get bored do you like to stir up some excitement?	M_2	E_3
125. Have you at times worried over your health to the point that even a doctor, who has found nothing seriously wrong with you, could not reassure you?		
126. Does it make you uncomfortable to have to put on a stunt at a party even when others are doing the same?	A_3	
127. Can you see situations in a good book so clearly that it seems almost as if you were present?		
128. Have certain people deliberately stood in the way of your advancement?		
129. Have you ever walked in your sleep?		
130. Can you usually think things out in broad general terms, leaving details to take care of themselves?		E_2
131. Do you sometimes wonder why you have bought a lot of things you have?		
132. Have you found that many people are more apt to "toe the mark" if they get a good "blowing up" every so often?		
133. Do you often times prefer to do things your own way, even when some other method is more commonly accepted?		
134. Do you think most people would sacrifice an advantage (or profit) rather than use unfair means to gain it?		H_2

	Yes	No
135. As a youngster did you at times get into trouble for stealing?	H_2	
136. Does it bother you to have your friends josh you in a good natured way?		
137. Have you ever lost sleep over worry?	M_2D_2	
138. Do you prefer serious minded people?		
139. Are you apt to become impatient when someone insists on telling you how to do work with which you are familiar?	M_2D_2	
140. Do you usually go to sleep very quickly?		
141. Would you prefer a line of work requiring much attention to detail, to one which involves a number of different activities?	E_2	N_2
142. Is it unusual for you to express an opinion strongly?		
143. Have you at times criticized or poked fun at any religious creed, to find that someone present was a member of that creed?		
144. When things are going smoothly, are you inclined to let well enough alone, rather than to seek improved methods?		N_2
145. Does a person usually have to have rich or powerful friends to succeed in a big way?		
146. Do you like to be with a lively bunch?		
147. Do you have hopes and aspirations which you bury in your heart?		
148. Have you often found people jealous of your good ideas, just because they had not thought of them first?	P_2	
149. Are you subject to severe sick headaches?		
150. Is it always a good thing to be frank?	E_1	
151. Do some people seem so bossy or over-bearing that they almost always make you want to do the opposite of what they ask you to do, even when they happen to be right?	D_2A_2	
152. Have you ever done anything dangerous for the thrill of it?		E_2
153. Do you think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others?	H_2	
154. As a youngster did you get out of tight places by pretending to be sick or hurt?		
155. Are there times when you are much more inclined to worry than at others?	M_1D_4	N_2
156. Were you fond of excitement as a child?	M_1	A_2
157. Are you a good mixer?		A_2
158. Do you sometimes have a feeling of tightness in your scalp, or in the back of your neck?		
159. When another person is unpleasing to you, are you more apt to let him severely alone than to give him a "piece of your mind"?		
160. Have people ever stolen your good ideas?		
161. Are you as willing to accept good advice on an undertaking after your plans have been completed as you are when you are working them up?		
162. Have you at times been provoked to the point that you have said or done things for which you were afterward ashamed?		
163. Have you ever been through a period in which your nerves got the better of you?		
164. Are you inclined to go out of your way to win a point with someone who has opposed you?	H_1	
165. Do you think nearly everyone would tell a lie to keep out of trouble?	H_2	
166. Have you ever had anyone take you in so cleverly that you had to admit it was one on you?		
167. Do you find it more pleasant to work with other people than by yourself?		
168. Have you often found that people are not willing to take friendly criticism in good spirit?		
169. Do you prefer to think things through step by step, rather than to seek a broad general view of the situation?	E_2	A_1
170. If you have liked a person from the first, are you apt to keep on liking him no matter what he may do?	N_1	E_2
171. Do you find some religious views so absurd that you feel impelled to attack them?		
172. Do you feel greatly disturbed when you find out that opportunities you have passed up, due to caution, could easily have been carried to success?		
173. Do you object to people who are very unconventional?		

	Yes	No
174. When you take a new job, do you like to be tipped off on whom to get on the right side of?	H_2	
175. Do you enjoy a race or game more keenly when you bet on it?	H_2	
176. Have you ever had a period of days, weeks or months in which you found yourself unable to attend to things because you could not get going?	D_2E_3	
177. Do you sometimes feel very much alone, even when people are about you?		
178. Have you at times been misunderstood when you were trying to keep someone else from making a mistake?		
179. Have you had flashes of thought which enabled you to plan out important work to the last detail?		
180. Do you usually sleep through the night without waking?		
181. Do you have a policy of "laying your cards on the table" with people whom you wish to correct, or improve?	N_2	E_2
182. Have you ever lost weight as a result of nervousness?		
183. Do you believe that majority rule is the best thing for society?		
184. Have you at times felt obliged to ask your friends to help you personally, even though you could not return the favor?	E_1	N_2
185. Have you ever avoided being taken to task over something in which you knew you had been wrong, by pretending to feel more sorry than you were?		
186. When you were in school did you sometimes get bad marks in deportment?	H_3	
187. Do you have periods in which your mind seems to work more slowly than usual?	M_2D_3	
188. Does it make you nervous to be on the water?		
189. Are there very few people in whom you can confide your troubles?		
190. Have you ever purposely annoyed someone you dislike?		
191. Have you ever suffered from periodic vomiting?		
192. Do you quite often have to pass over details in your work in order to keep its important features in mind?		
193. Have you any fault which is so much a part of you that it seems better to accept it, and try to control it, than to try to do away with it?	D_2	
194. Have you at times been afraid of losing all your friends?		
195. Have you ever enjoyed beating a crook at his own game?	H_3	
196. When you were a child, did you belong to a crowd or gang that tried to stick together through thick and thin?	H_2	
197. Do you ever wear yourself out by undertaking too much?		H_1
198. Are you apt not to give your opinion at a meeting unless you are asked for it, even when you do not like the way things are going?	A_3	
199. Do you try to figure out the reason another person may have for doing something nice for you?	A_2P_2	N_1
200. Have you had flashes of thought which enabled you to plan out important work with great assurance?		
201. Have you ever felt like "kicking yourself" over profits you might have made, or advancement you might have gained, had you been less cautious?		
202. Do we all demand more respect for our own rights than we give those of other people?	P_1	
203. Have you ever avoided catching it by pretending to feel sick?		
204. Do you sometimes feel cross or grouchy without special reason?	D_3A_1	
205. Do you become interested in a variety of hobbies rather than sticking to one hobby for a long time?	H_2	A_2
206. Are you apt to take disappointments so keenly that it is difficult to get them out of your mind?	D_3	
207. Do you ever blush?	A_2	E_1
208. When you lose out on a proposition you have tried to put through, do you find satisfaction in knowing you were right?		
209. Have you had nightmares so that you disturbed other people?		
210. Have you in mind some important project which you would like to carry out if you had an opportunity?		
211. Have you ever worked for a long time with a person of whom you had a poor opinion, or whom you pitied, without letting him know that you felt so toward him?	N_2	E_2

	Yes	No
212. Do you sometimes like to keep people guessing what you are going to do next?	H_2	E_2
213. Do you think most people inwardly dislike putting themselves out to help other people?	H_2	N_1
214. Is a man who provides temptation by leaving valuable property unprotected as much to blame for its theft as the one who steals it?	H_3	
215. Have you sometimes discovered you were tired only when your first opportunity for rest came?		
216. Have you ever been forced to admit to yourself that you had been worried beyond reason over something that did not matter?	M_2D_2	E_1
217. Are you likely not to speak to people until they speak to you?	A_2	
218. When you have made up your mind on a subject do you usually consider it settled?		
219. Do you sometimes have one-sided sick headaches?		
220. If you were to succeed equally in either case, would you prefer to carry on several important undertakings at one time, to carrying on one important undertaking after another, as each was finished?		
221. Do you readily become one hundred per cent sold on a good idea?	E_2	N_2
222. Is more than one person, so far as you know, afraid of you?		
223. Does nearly everyone place his own interests first, in spite of what he may say on the subject?		
224. Do you like to bet?	H_3	
225. Have you ever lost weight over worry?	D_2	N_1
226. Do you think there are a large number of people with unwholesome sexual morals?	H_1P_1	N_1
227. When you plan things out can you see them in your mind's eye almost as clearly as if they were before you?		
228. Do you believe that there are subjects upon which one should steadfastly maintain his opinion?		
229. Have you found it wise to be on guard when people seem to go out of their way to be friendly?		
230. Have you at times lost consciousness from any cause?	E_4	
231. Do you prefer to do one thing at a time to keeping several projects going?		
232. Have you at times felt obliged to take sides in a quarrel in a club or other organization?		
233. Are you always on the lookout for improved ways of doing things?		
234. Is it always best to keep your mouth shut when you are in trouble?	H_2	N_1
235. As a matter of fact, is nearly everyone strictly out for himself?		
236. Does it make you nervous to have to wait?	M_2	
237. Does it make you feel like a failure when you hear of the success of someone you know well?	A_2	
238. Are you apt to pass by school friends, or people you know but have not seen for a long time, unless they speak to you first?	A_2	
239. When you make up your mind about a thing do you change easily?		
240. Have you several times had a change of heart about your life work?	D_2	E_1
241. Do you have a habit of counting to ten, or biting your lip or any similar habit that you use to control your temper?		
242. Is your conduct largely controlled by the customs of those about you?	M_1	P_1
243. Have your own best interests ever forced you to sacrifice friendship?		
244. Do you blame a person for taking advantage of someone who lays himself open to it?		H_2
245. Do you like a large crowd?	H_2	A_2
246. Can you understand and sympathize with the feelings of discouraged people?		
247. Are you easily embarrassed?	D_1A_4	P_1
248. Have you often found that someone was trying to take credit for your work or for your ideas?		
249. When you have undertaken a task do you find it hard to set it aside even for a short time?	A_1	E_1
250. Have you been forced into a fist fight since you have been grown up?		N_2
251. If you had a rival in an organization in which you were working, who was just about as efficient as you are, would you feel justified in trying to secure the affection of the President to gain advancement over your rival?		
252. Were you nearly always "on the go" as a child?		

	Yes	No
253. Are you reserved to the point that you sometimes find it hard to stick up for your rights?	A_3	H_2
254. Do you limit yourself to a very few close friends?	A_2	
255. Do you find it necessary frequently to stand up for your convictions or beliefs?	P_2	N_2
256. Have you ever taken up a line of work which called for close attention to fine detail, to the exclusion of other activities?	H_2	N_2
257. Do you ever find yourself becoming downhearted or discouraged for no apparent reason?	D_2	
258. Do you think most people are honest chiefly through fear of being caught in a dishonest act?	H_2	
259. Have you often had so much to do that you found it hard to decide where to begin?		
260. Do heights make you nervous?	A_2	
261. Are there times when you feel more ready to be active and doing things than others?		
262. Does it make you uncomfortable to be conspicuous?		
263. Have several people under whom you have worked seemed afraid that you would get to know as much about the work as they did?		
264. Do you often become so wrapped up in something you are doing that you find it difficult to turn your attention to other matters?		
265. Have you at times been under such a strain to keep your temper that you have afterward felt ill?		
266. When you are in trouble is it best to tell the whole story?		
267. Do you sometimes get so excited that you find it hard to get to sleep?	M_3D_2	
268. Can you understand people who tend to cling to their griefs and troubles?	P_1	
269. Do you dislike to do things which are not customary, even though they seem all right in other respects?	A_2	
270. Do you sometimes wish people would let you alone and not pry into your personal beliefs, ambitions or problems?		
271. Have you ever had a calm feeling of power arising out of the fact that your mind was working clearly and accurately?		
272. Have you ever had to stop school, or work, or leave home due to nervousness?		
273. Have you ever wanted to have enough money to follow such sports as racing, boxing and wrestling?	H_3	
274. Do certain people "dust your feathers the wrong way," or seem to "go against the grain" nearly every time you see them?		
275. Are you sometimes so "blue" that life seems hardly worth living?	D_3	
276. Do you at times get up in the morning feeling tired, to find that when you get going the tiredness disappears?	M_3D_2	H_2
277. Do you find it hard to make talk when you meet new people?	A_4	
278. When you imagine anything do you picture it so clearly that it seems almost as if you were actually seeing it?		
279. Have you found that your way of doing certain things is apt to be misunderstood?	P_2	N_2
280. Have you often had occasion to tell people to mind their own business where you were concerned?		N_2
281. Do you dislike to concern yourself with details?		
282. Have you ever stayed away from another person because you feared doing or saying something you might afterward regret?	P_2	N_2
283. Have you gone through life without nervous upsets?	N_2	
284. Have you ever been so amused at the cleverness of some crook that you hoped he would be acquitted?	H_3	
285. Have you at times felt sure that people were trying to get the better of you, although you could not prove it?	P_3	E_1
286. Are you just as happy over something that pleases you when you must keep it to yourself as you are when you can tell your friends about it?		
287. Have you had more than your share of worry?	D_2	N_2
288. Do you want to be by yourself when things are bothering you?		
289. When you feel in your own mind that something you want to do is right, do you mind what others may think?		
290. Do you sometimes control the actions of your friends, or of those near to you, by pretending to feel sick or hurt?		

	Yes	No
291. Do you feel disgusted with the courts when someone accused of a crime is freed, not because he is innocent, but on the basis of a fine point of law?		H_3
292. Do you often feel that much in life consists of making the best of a bad bargain?		
293. Have you ever felt that difficulties were piling up to such an extent that you could not overcome them?	D_3E_1	N_2
294. Do you greatly dislike to have people talk about you?	A_2	
295. Have you had periods in which the meaning of life has seemed indisputably clear to you?	D_1	N_2
296. Have you several times had to "sit on" rude or annoying people?	P_2E_1	N_1
297. As a youngster, did you at times play hookey from school?	H_3	
298. Have you ever had anyone slip something over on you so cleverly that it tickled you?		E_1
299. Does a snappy pep talk (on your work) make you want to try harder?		
300. Do you ever feel unworthy of your friends, or of the things they do for you?		
301. Are you apt to pass up something you want to do because nobody agrees with you as to its merits, or with your method of going about it?	D_2A_2	
302. Have you at times been certain that people were talking about you, although you couldn't prove it?	H_1P_2	N_1
303. Have you sometimes felt irritable, cross or grouchy for a long time without giving any outward sign whatever, and then suddenly become unreasonably angry over some trifle?		
304. When you are busy with an important piece of work, are you impatient when you are called upon to make a decision on some other matter?	M_2D_1	
305. When you are feeling fit as a fiddle, does it bother you to have to be with someone who is down in the mouth?		
306. Do you like to belong to lodges and clubs?		A_1
307. Were you ever expelled from school?		
308. Have you had many fears which proved unfounded?	M_2D_3	
309. Are you inclined to take things hard?	D_3	
310. Can you usually more than hold your own in a swap or trade of articles with other people?		
311. Do you regard yourself as being "high strung"?		
312. Do you dislike to change your plans in the midst of an undertaking?		
313. Do you like people so well that one of your greatest joys is being with them?		
314. Have you ever felt useless—almost as if you were no good at all?	M_2D_2	
315. Have you at times made mistakes by being overly enthusiastic?		
316. Are there some things about yourself which you find it impossible to discuss with others?		E_2
317. Do you like to be in a crowd of folks who play jokes on each other?	H_2	
318. Do you form strong likes and dislikes for people?		

THE ASCHNER TREATMENT OF SCHIZOPHRENIA.

A Therapeutic Note.

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For the last 20 years there has been a revival of interest in the constitutional aspects of disease, first in Germany, more recently in the United States. The leaders of this movement have aimed to integrate the scientific advances of the last 75 years in genetics, morphology, physiology and allied branches, but not to revive the old humoral pathologies. Interest has not centered on therapeutics, however, except in the endocrine field. Bernhard Aschner, a gynecologist of Vienna, has on the contrary sought to revive the constitutional therapy in vogue prior to Virchow and, within measure, even the constitutional theories of that day. As an example he insists that the menstrual function is an excretory one and that the products contained in the menstrual blood if retained are toxic. He says: "I was able to show that in emmenogogue treatment, in association with other somatic therapy, one has a powerful tool for the rapid amelioration and cure of both neuroses and psychoses, an improvement which eludes one, if one adopts a fatalistic attitude and waits for the menstrual disturbance to clear up simultaneously with the psychoses, or not at all." Aschner points out that in the great mass of literature about schizophrenia there is very little concerning treatment. He believes that some mental diseases originate outside of the brain, for instance, in disturbances of menstruation, of digestion, of liver function, or of the internal secretions. He then concludes this statement by saying that the specialization of the day has erred because it has directed most of its researches in the psychoses to the investigation of the brain itself. His therapeutic principle is really, "Treatment of the whole organism."

His ideas on theory and treatment are elaborated in his books: "The Clinical Diagnosis and Treatment of Menstrual Disorders," "A Textbook of Constitutional Therapy," and "The Curative Value of Constitutional Therapy in Mentally Ill Women, Especially in

Schizophrenia." In the latter volume of some 500 pages, he outlines the theory and practice of constitutional therapy in the psychoses, as practiced by Heinroth and others in Germany a century ago (he might have added by Benjamin Rush in the United States). He reports 64 cases to illustrate the remarkable results obtained by him with these methods. He rejects most of our modern therapeutic measures and drugs, including sedatives, on the plea that they are local in their action or merely palliative. Thyroid extract is the only endocrine product which he adopts with any enthusiasm. He emphasizes the value of cold baths, sweats, drastic purgatives, emmenogogues (many of which have been dropped from our pharmacopœia) emetics, blisters, and periodic blood letting. The reader must be referred to the original for details of the treatment.

The writers recognize that many of Aschner's theories are highly speculative; some of his psychiatric diagnoses uncertain, especially as regards schizophrenia; that his intensive therapy and probably his own personality were strongly suggestive factors. They were also familiar with the devastating criticisms of his work which have appeared in the literature.[1] Nevertheless, they also recognized that many of the effective drugs in medicine and many valuable therapeutic procedures were purely empirical in their nature and their use antedated the scientific era. Hence it was possible that valuable fruits of therapeutic experience in psychiatric practice had been thrown away along with the dross in the early enthusiasm for scientific medicine. At that time, moreover, advance in scientific medicine was allied with nihilism in therapeutics. It was clear, on the other hand, that most of Aschner's methods acted in some way on the vegetative nervous system by stimulating organs (heart and blood vessels, skin, stomach, intestines) innervated by the autonomic system. Hoskins' work shows conclusively the retardation of the vegetative functions in schizophrenia.[2] A diagram contained in

[1] Arlt, E.: Psychiat. Neurol. Wchnschr., Vol. 36, 73-78, 1934.
Carriere, R.: Psychiat. Neurol. Wchnschr., Vol. 36, 79-80, 1934.
Pavlicki, L.: Abstr. J. A. M. A. Psychiat. Neurol. Wchnschr., Vol. 36, 25-29, 1934.
Jour. of Nerv. and Mental Dis., Vol. 80, no. 5, 114-119, 1934.
Amer. Jour. of Psychiat., Vol. 8, no. 2, 460-464, 1934.

[2] Hoskins, R. G., and Jellinek, E. M.: The Schizophrenic Personality with Special Regard to Psychologic and Organic Concomitants. Proceedings of the Assoc. for Research in Nervous and Mental Disease, Vol. 14, December 1933.

Hoskins' paper presents many subnormal values of various organic functions in schizophrenics and further on he states that "the schizophrenic is characterized by sluggish sympathetic reactivity." Therefore some of the assumptions that Aschner makes empirically are substantiated to a considerable extent by Hoskins and his associates in the laboratory. We therefore determined to try Aschner's method in a somewhat simplified way, confining the drugs to a selected few, which are still in general use, and eliminating procedures such as blisters, setons, cups, and drastic purgatives.

The following outline was placed in the hands of the head nurses who carried out the nursing technique of this treatment. The rationale of each procedure was explained to them. It gives an idea of the course of treatment.

Outline of Treatment.

Purpose of the Treatment:

1. Detoxification of the patient.
2. Production of physical symptoms which will command the patient's attention (probably by stimulation of the vegetative nervous system).
3. Stimulation of the various bodily systems which are usually sluggish in schizophrenic patients, chiefly the circulatory, gastro-intestinal, and excretory systems.

Circulatory System:

1. Daily walks and exercise.
2. Daily tub bath, 30 minutes' duration. Temperature starts at 90 degrees and at the end of 15 minutes is reduced to 70 degrees. Throughout the bath the patient is given massage under the water, rubbing from the periphery upwards or centrally. Then place the patient in bed, with warm blankets and continue the friction until the patient is thoroughly warm.
3. Sweat for 15 to 20 minutes three times weekly using the electric cabinet or hot blankets.
4. Venesection once in three weeks—100 c. c. to 300 c. c.

Gastro-Intestinal System:

1. Two bowel movements daily produced by diet, mineral oil or a laxative drug (cascara sagrada, phenolphthalein, or magnesium sulphate).
2. Purge once weekly (senna, magnesium sulphate, or compound cathartic pills).
3. Vomiting once a week produced by drugs, usually tartar emetic. This is administered in the following way. The patient is given a capsule every morning before a light breakfast. Six mornings of the week the capsule is a blank one, but on the seventh morning the capsule contains the drug. In this way the patient is kept in ignorance of

which capsule contains the emetic. If the drug fails to work, apomorphine hydrochloride is given about three hours later and vomiting will occur.

Endocrine System:

Drugs or hormones to produce pelvic congestion and bring on or increase menstrual flow (senna, aloes, ovarian substance, and theelin).

Skin:

Stimulation of the skin by means of cabinet baths, cold baths, and vigorous massage were used to activate the circulatory and excretory functions.

Laboratory Routine:

Blood counts and urine analyses monthly or more often if prescribed.

Records:

Special records of these patients are kept. The nurse's notes include a description of the patient's behavior, blood pressure, weight, hours of sleep, and mental state, and in cases of females, menstrual function. In addition, the physician records the behavior of the patient according to the behavior chart of the Phipps Clinic at Baltimore.[3]

The Cases.

A small group of relatively recent schizoid cases were selected and treated as systematically as possible, for a period varying from several months to a full year. The treatment was varied as necessary but perhaps not so strictly individualized as Aschner recommends. In particular no special effort was made to treat obesity by systematic weight reduction or undernutrition by " mast " cures.

Fourteen patients received a more or less thorough course of treatment. These cases were equally divided between the sexes. The results may be summarized thus:

Men	
Definitely better after treatment	2
Not helped or made worse	3
Remained the same	2
Women	
Became better after treatment	3
Remained the same	4

The following notes concern only the cases which improved. Two of those who became worse lost much weight but regained it following cessation of the treatment.

1. M. J., male, age 28, was admitted 12/1/33 and diagnosed schizophrenia, no one dissenting. Treatment was begun 1/22/34 and he soon improved

[3] Ruge, Anne: The Behavior Chart. Am. Jour. of Nursing, Vol. 34, no. 5, 428, 1934.

Brown, Gertrude: New Methods in Psychiatric Nursing. Am. Jour. of Nursing, Vol. 35, no. 2, 1935.

markedly and was able to return to work for a short time in May. At this period we were quite encouraged by his response to treatment. In June he returned in a distinctly manic state but was able to return home again after three months. (The Aschner treatment was begun anew after each admission.) Less than three months later he again returned for a third time in a manic phase, characterized however by stereotyped ideas and loosely organized delusions. The diagnosis remains schizophrenia.

2. N. J., female, age 33, admitted 10/3/33. She was seclusive, suspicious, worrying and depressed. Delusions and probably some hallucinations were present. Diagnosis schizophrenia. Aschner treatment was begun 12/12/33 and in April she was able to leave the hospital and to take a position. Here again we were enthusiastic about the treatment. Later she had a slight return of symptoms but the physician in charge is sure that "the treatment did something for her."

3. G. F., male, age 21, musician, admitted 2/22/34. He showed an apparently shallow depression with bizarre somatic delusions, mainly centered on his genitalia. The consensus of opinion was schizophrenia. The Aschner treatment was started 3/12/34. He showed very satisfactory improvement and had insight into his delusions and once more we were encouraged with the treatment. He was paroled 7/7/34, greatly improved. Three weeks later he was returned in a mild hypomanic phase which persisted for six months.

4. L. M., female, age 17. She has a bad family background. She had previously been in the hospital and had been diagnosed as catatonic dementia præcox. She returned 9/8/33 with similar symptoms. The Aschner treatment was begun 12/26/33. There was no marked improvement until April 1, 1934, when quite suddenly she began to improve and was able to go home a month later. She has since then (one year ago) been perfectly well.

5. D. A., female, Jewess, age 20. Following a strike in the factory where she worked she became over active and silly. While there were many schizophrenic symptoms we felt that the diagnosis was manic-depressive psychosis. She was admitted 10/12/33. The Aschner treatment was begun 1/9/34 and she was able to go home on visit 3/31/34. Here again we certainly had grounds for enthusiasm over the treatment. She appeared to be helped and on many occasions spoke of how much better she felt after the emetics had acted. She was admitted 11/1/34 feeling rather depressed but this attack did not last long.

One or two other cases showed some transient improvement, but this could not be correlated with the treatment.

Conclusions.

When critically examined the results in this small series of cases are of course disappointing. One thing that we are certain of is that the treatment usually does *something* to the patient. We were more impressed with the procedure while it was under way than we were when we began to evaluate it after the treatments had

been stopped. We realize that one has to raise the question as to whether the increased attention given to the patients, or the natural periodicity of the illness, were not large factors in the turn for the better that some patients showed. *There were several cases in which marked affect, not previously present, appeared following the treatment.* We are not in a position to state whether this stirring up of affect was produced by the treatment or not. It is a point that must be considered. One of us (Dr. Appel) who was privileged to see Dr. Aschner's patients and to talk to them and their families had the impression that there was some value in the treatment which was not attributable to chance or other extraneous causes. It certainly seemed as though some *bona fide* schizophrenics were helped toward recovery through this treatment.

There is no question that in some of our cases this method definitely produced a *temporary* change for the better, not only in physical condition but also in mental condition; but in the majority of cases it was *only* temporary. Aschner might object that some of our poor results may have been due to the fact that we did not individualize the treatment sufficiently or that we did not treat some of the patients as strenuously as Aschner recommends. Our feeling is that in the future we will use this treatment in certain selected cases (perhaps young persons who have apparently become stuck in a hopeless rut), treat them more actively, and individualize the treatment more carefully.

THE RÔLE OF OCCUPATIONAL THERAPY IN MODERN PSYCHIATRY.[1]

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1. Introduction.

Occupational therapy, as we know it in the psychiatric institutions of to-day, reflects largely the need for training to meet special handicaps and disabilities which arose from war injuries and neuroses.[2] Facing such an urgent need in the surrounding medium of war, it is not surprising that occupational therapy should then have adopted the ready-to-hand arts and crafts as its method and the positive suggestion of the "Mary Sunshine" attitude as its psychological approach. In the years that have followed the war, occupational therapy has acquired new techniques, but no explicit concomitant change in psychological attitudes has taken place.

Is such a change necessary? The answer lies in the changed purpose of modern psychiatry itself. Our task is no longer limited

[1] Based upon a paper read before the tenth annual conference of the Massachusetts Association for Occupational Therapy at Boston, Mass., November 24, 1934.

[2] This statement refers to the work of *professionally trained, registered* occupational therapists in the "shop" and "class" situations which obtain in state hospitals generally. The need for occupational and recreational interests in mental hospitals was of course recognized prior to the war period. There is the isolated instance of the (Quaker) Pennsylvania Hospital for the Insane "nearly 100 years ago" (*cf.* Eleanor C. Slagle's article, J. of Occ. Ther. and Rehab. xiii, 5, p. 291), but it was not until the summer of 1908 that the need of a specialized teaching program was presented in a course at the Chicago School of Civics and Philanthropy. In the 1910 report of the Massachusetts State Board of Insanity (p. 89) there appears a recommendation which was carried out in 1911 by the appointment of a Supervisor of "Occupation and Diversion" whose first report (14th Annual Report of the Massachusetts State Board of Insanity, p. 44) is a brief but interesting presentation of the value of occupation and recreation carried on under nursing supervision. However the movement which culminated in the establishment of schools for the professional training of occupational therapists had its inception during the war, since which time the American Occupational Therapy Association has set the standards for training in all branches of the field.

to that "custodial care" which fosters retreat from reality; it is rather the task of preparing the individual for a return to the community with as active and useful an adjustment [3] as is possible to him. Thus our ultimate purpose, ideally conceived, must be the *social rehabilitation* of the individual.[4]

Occupational therapy has given valuable energy outlets to patients. Its inclusion in the hospital program has been of inestimable value in avoiding the deadening monotony of idleness and the mental torpor that follows in its wake. But this is not enough. It is necessary that occupational therapy now be evaluated in the light of the larger therapeutic purposes of psychiatry, and that its functions and attitudes be determined in accordance with these purposes.

2. The Functions of Occupational Therapy.

Accepting then as our primary purpose the social rehabilitation of the individual, let us examine the field of application of this aim. In other words, are all our patients capable of being socially rehabilitated? If not, then we are under the necessity of determining differentiating criteria and of re-stating our objectives, not only to fulfill our primary purpose but also to include those secondary purposes which are determined for us by the limitations of individual potentialities.

Specifically, in psychiatry, we recognize the limitations of therapy in the mental deficiencies and certain of the organic reaction types. With the former group, we attempt to develop to the fullest extent those capacities which the individual possesses; in the latter, our efforts are designed to stem the tide of organic destruction, and to make life as pleasant as possible in the interim. There is an exact counterpart in occupational therapy. The approach here must

[3] *Cf.* article by the writer entitled *"A Reorientation for State Hospital Psychiatry"* in a forthcoming issue of *Mental Hygiene* for a discussion of the *social-economic adjustment criterion.*

[4] It is recognized that a certain "hospital residue" remains despite the most active therapeutic efforts, and it is not implied that the standard of institutional care for these patients is to be sacrificed to the more important work of social rehabilitation. Rather, the problem seems to be one of setting up primary and secondary goals, and orienting all hospital activities with respect to them.

be one in which the possibilities in individual response are known to be limited, *i. e.*, the capacities dealt with are either incapable of reaching a normal level or irrevocably deteriorated from such a level. A program of occupation designed to meet the needs of this group can be called simply by its medical name—*palliative therapy.* This has its distinct field of application and is especially valuable in the early institutional training of the occupational therapist.

Again, in psychiatry we recognize certain reaction types, notably the paranoid, in which fixed attitudes are frequently an effective barrier to psychotherapy, and specific resentments or anti-social tendencies make adjustment in the community impossible. Here the immediate problem is that of bringing about the best possible hospital adjustment, *i. e.*, to socialize the individual within the limits of the hospital situation. The patient, however, is concerned with problems which have a distinct self-reference, and the greater this concern, the more unhappy and irritable is his response to the restraint inherent in hospitalization. Because of the seemingly innocuous character of the initial interests provided by the occupational therapist, the patient here frequently makes the first contact which represents acceptance of anything the hospital has to offer. The therapist must continue to circumvent the self-reference of the patient's thoughts and activities, finally bringing him to recognize a voluntary relationship to the hospital in an occupation which is grossly devoid of personal reference. Here a specific end is predetermined by physician and therapist, seeking to change a specific attitude. This may be called *corrective therapy.*[5]

Of a less fixed reaction, and greater apparent accessibility, are those minor neurotic manifestations in which certain socially unacceptable behavior patterns, of recent origin or appearance, exist for the conscious or unconscious relief of emotional tension. Once the emotional origins or relations of such behavior can be discovered by the psychiatrist, he can, with the occupational therapist, plan activities which will substitutively satisfy the emotional needs of the individual on a socially acceptable level. This may be called *substitutive* or *alterative therapy,* and, like *corrective therapy* (of

[5] Just as in orthopedics we would attempt to correct a known deformity, recognizing the limitations set for method and result by the nature of the illness.

which it may be considered a subtype), it should be carefully directed toward a specific end.

Finally, we come to the group for whom social rehabilitation is considered possible. This group includes both psychotic and neurotic persons in whom a disintegrative process in the total personality has impaired either the ability to deal with reality, or the efficient, unified response to the exigencies of living. Here both the individual and social effectiveness of the patient is hampered by emotional fixations or psychic constellations of which he is not consciously aware. Modern concepts of dynamic psychology teach us that such persons react in accordance with their emotional needs, and that in a treatment situation, a relationship arises (between therapist and patient) which becomes a miniature stage for the acting out of the patient's characteristic behavior patterns. If, in this treatment situation, the relationship can be handled with understanding and insight, it becomes a most powerful therapeutic tool. This type of therapy, in which the treatment is inherent in the working out of the relationship which exists between the patient and therapist, may be called *reintegrative therapy*, since it is designed to restore the functional unity of the personality through a bringing-to-conscious-awareness those drives and emotional fixations which have been the unconscious determinants of abnormal behavior patterns.

If the objection is raised that such treatment should be carried on only by physicians, it is necessary merely to indicate that when (as is frequently the case in large institutions) a ratio of one physician to from 300-500 patients obtains, the possibilities for carrying out any extended personal treatment are decidedly remote. Thus it becomes necessary to train persons who may act as intelligent "therapeutic aides," functioning under the guidance of a psychiatrist. Just as social treatment of patients and their relatives is undertaken in the community by trained social workers under direct medical supervision, so the occupational therapist, with intelligence, emotional maturity and an interest in modern psychological approaches, should undertake these new responsibilities to meet the needs of treatment within the hospital.[6]

[6] It becomes increasingly obvious that occupational therapists must themselves set standards at least comparable to those now generally accepted in the field of social service. Thus an academic degree should be obligatory, and

3. Methods.[7]

While it is obviously not possible within the limits of this article to enter into an exhaustive discussion of the methods whereby each of the foregoing types of treatment may be undertaken, it might be well to indicate that occupational therapy under such a program is by no means limited to the "shop" situation. In fact the "shop" has fallen into increasing disuse as the necessity of avoiding artificial situations has become clear. No matter what the patient's reaction to hospitalization may be, his first adjustment must be made on an admission or "treatment" ward.[8] The occupational therapist's first contact should be made here, when the ward class is a pleasant break in the day's routine and the therapist's friendship with other patients tends to reassure the newcomer. During the two to four weeks spent in such a class, the patient's reactions are carefully noted by the therapist, and occupational interests, training and experience explored. When, at the end of a preliminary observation period, the psychiatrist is ready to prescribe the category of treatment (*i. e., palliative, corrective,* or *reintegrative*), in which the patient should be considered, the occupational therapist is ready to suggest the means[9] by which the specific end may be attained, or the treatment relationship instituted.

The establishment of the closer contacts necessary to *reintegrative therapy* is generally facilitated by the therapist's direction of and participation in the various small-group activities which are part of each day's routine on the treatment wards. These activities, ranging from eurhythmic dancing to gardening, run the gamut of many specific individual interests (music, literature, dancing,

wide cultural interests should be presupposed, in addition to the acquisition of the special techniques necessary to the direction and training in the varied activities indicated in the section on methods.

[7] Acknowledgment is made of the valuable cooperation of Miss Olive Caldwell, chief occupational therapist, and the constant and understanding assistance of Miss Gertrude Watkins, assistant in charge of occupational therapy on the female psychiatric service of the Worcester State Hospital.

[8] Such wards permit of classification on the basis of reaction types.

[9] The occupational therapy department of the Worcester State Hospital has available a comprehensive "job analysis" survey, indicating the possibilities of every industrial assignment in the hospital, ranging from the simplest repetitive mechanical operations to the exacting requirements of assisting in the preparation of complicated statistical analyses.

pantomime, painting, clay modeling, weaving), which are then developed further in the therapist's daily contact with the patient outside of class hours and other group activities. In the relationship which develops, the working out of the needs of the patient's personality becomes the paramount consideration. The therapist remains as passive as possible. She must in every instance foster an independent solution of the problems which arise, suggesting, indirectly only, the source of the presenting paradox in the patient's own attitudes, and bearing in mind constantly the general lines of procedure indicated by the psychiatrist. The therapist's guidance must be unobtrusive yet definite, so that she does not become either the tool of the neurosis or an indispensable prop to the patient.

It is of course obvious that such a relationship is at least superficially similar to that which develops in the psychoanalytic form of treatment. The occupational therapist, however, is not expected to act as psychoanalyst, or constantly to interpret the patient's behavior in the light of this doctrine. It is expected, on the other hand, that she will, in conference with the psychiatrist, discuss the meaning of the clinical picture and the development and possibilities of the treatment relationship. She must at all times during her contact with the case be ready objectively to evaluate her rôle in this relationship, and to observe with intellectual understanding, rather than sympathetic sentimentality, the reactions of the patient in the treatment situation.[10]

The types of therapy outlined—*palliative, corrective,* and *reintegrative*—are all distinctly necessary in a large forward-looking institution. The last, though most important in the attainment of modern ideals of therapy, is undoubtedly indicated in the least number of instances. In reviewing more than 200 cases referred to the occupational therapy department, it is estimated that *palliative therapy* was used in 42 per cent, *corrective therapy* in 35 per cent and *reintegrative* methods in only 23 per cent.

4. Records.

In any hospital department which treats large numbers of patients, it is essential that records be kept (1) so that the depart-

[10] It is assumed that in undertaking reintegrative treatment, the therapist is familiar with the material in the psychiatric and social service histories of the case.

ment may know what it is called upon to do and may organize its time and facilities accordingly, (2) so that material may be available for statistical analysis and purposes of research, and (3) so that there may be available to other departments, pertinent and accurate data anent the patient's clinical course. Occupational therapy should be no exception to the rule. The fact that the records of such departments are frequently notations of tasks assigned and products completed, with perhaps the addition of a perfunctory comment as to the patient's "cooperation" (*sic*) in the enterprise, indicates a necessity not for the abandonment of records, but rather for their revision into meaningful accounts of actual treatment in accordance with the types of therapy outlined.

Since the psychiatrist must, in every instance, be responsible for the therapy given, a form should be available on which he may prescribe the specific category of treatment indicated. When *corrective therapy* or one of its subtypes is prescribed, the result desired should be explicitly stated. Record-keeping should not be made tedious or voluminous, or it will defeat its own ends. It should be arranged to foster economy of effort in routine tasks so that more time can be given to the important work of treatment.

The following general principles may be formulated:

1. Every case should have a record which includes (a) identifying data and (b) physician's prescription.

2. In *palliative therapy,* the record should indicate success in obtaining palliation, with brief suggestions for therapists who may work with the patient subsequently.

3. In *corrective therapy,* the record should contain (a) purpose of treatment, (b) method used to attain this purpose, and (c) concise statements of progress at intervals of one month or less.

4. In *reintegrative therapy,* the record should if possible include a note descriptive of each interview. If the case load precludes this, the therapist should trust as little as possible to memory and should keep brief notes regarding each contact, summarizing these at not longer than weekly intervals, and never in outline form. The patient's behavior and statements should be accurately detailed, with especial care given to the description of emotional attitudes, together with the specific stimuli or general situations which seem to elicit these affective responses. These records should be checked by

the psychiatrist at regular intervals, so that treatment can be carefully directed and the occupational therapist's rôle in the relationship objectively evaluated.

5. Conclusion.

The state hospital of to-day is facing the challenge which modern psychiatry sets it. It must give individualized treatment, particularly to those patients who want help and need something other than "custody." How to give this treatment with the facilities and personnel at hand is a problem which confronts the psychiatrist daily. In the attempt to solve this problem, he must use every resource which the hospital can offer. Social service departments have already taken on the work of treating patients in the community, well-trained nurses are acting as observers and learning to handle carefully and understandingly those problems which are constantly presenting themselves within the scope of the ward situation. In trained occupational therapists, the psychiatrist finds, ready at hand, a group of persons who are eager for new responsibilities. They have at their command special techniques which can be utilized for much larger purposes than those to which they have been limited.

In view of the effectiveness of the program of occupational therapy outlined in this paper, as demonstrated on the female psychiatric service of the Worcester State Hospital, it becomes evident that if the psychiatrist will set the goal and be responsible for the direction of occupational therapists, the returns in understanding assistance in his therapeutic purposes will be large and immediate.

FATHER DIVINE: HOLY PRECIPITATOR OF PSYCHOSES.

(With a Report of Three Cases.)

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The King, alias God, alias Father Divine, has, for the past few years, commanded the attention of the newspaper reading public, the slavish devotion of the gullible and the admiration of financial wizards; he has likewise been the chronic despair of the judiciary division of the New York City government. Who he actually is, where he came from, how he continues, no one knows; but his rule is more absolute and unquestioned than any dictatorship known in history. Wherever the so-called King is seen, a swarming flock of zealous followers trail him with placards and signs declaring: "Father Divine is God," "God Almighty is Father Divine"; while other worshipping disciples shout and scream: "God! God! There is Father Divine! He is God!"

In 1931, before his name was headline property, before he had emerged from relative obscurity to front-page prominence, Father Divine, like so many of his ilk, was nothing more than an ebon director of some sort of "holy-rolling" religious practice which was embraced by both blacks and whites, and which he had established as his "kingdom" in a nondescript house at Sayville, Long Island, New York. To him, in his seaside citadel, literally hundreds of people flocked; men, women, old, young, white, black; coming on foot, by train, by bus, in second-hand flivvers, or shiny new limousines. Sunday traffic in this relatively secluded village became a milling, unmanageable maze.

Certain reporters, particularly a woman on the staff of a New York magazine, scenting the unusual—the "scoop"—mingled with the worshippers in a futile attempt to discover something illegal, something shady; so positive were they that this entire affair was merely another "racket." But the shrewd, uncanny Ethiopian had already enveloped his cult in a shroud of mystery, as yet unsolved. He fed, lodged, clothed and supplied money to his visitors, without

apparent means of doing so, or without income. There was no end to his bountiful liberality, yet he refused all contributions, monetary or otherwise. Donors who personally appeared were politely reminded that the King accepted no gifts; mailed checks were returned with a note of appreciation; and anonymous donations were publicly given to some charitable organization. He had no bank account, save a small checking one which he used to pay the tradesmen promptly and regularly on the first of each month. The reporters, spoken of above, employed ingenious methods to have him accept money, but universally met with defeat. This very mystery of endless riches served to enhance his glory in the wide-eyed awe of his followers. To this day, no one has answered the question, even attempted to fathom the riddle of "How does he accomplish it?" The followers are thoroughly convinced that it is simply part and parcel of his miraculous powers.

The staid residents of Sayville had a twofold grudge against the preacher. The clamor and din that emanated from his temple disturbed the hamlet's serenity; and the free intermingling of negroes and whites began to ruin the summer resort trade. Hence, Father Divine was haled into court as a public nuisance and given the proverbial 24 hours to leave town. With a beatifical smile of piety, the King shrugged his shoulders and moved bag and baggage to Harlem, the colored section of New York City, where he established the Faithful Kingdom. From this, because of his swelling ranks of devotees, Father Divine has branched out until, at present, there are more than a dozen strongholds in Jamaica, Westchester, New Jersey, Connecticut, and elsewhere; while enthusiastic graduates have created centers from coast to coast.

He is continually harassed by process servers, court summonses, newspaper reporters, curiosity seekers, lawsuits, and various societies. However, his even temper remains unruffled, his placid disposition unperturbed. One of his allies is a clever lawyer, also a negro, who, by a fortuitous circumstance at the very first court appearance, added to the prestige of his chief. At a meeting, he predicted that Father Divine had meted out death as punishment to the judge if the latter, at a hearing the following day, should sentence the heavenly leader to prison. At the trial, nothing could be discovered as to the Lord's origin, since he simply and quietly averred that he "had been divinely projected into existence and had

no record of his life." His naïveté was bullet-proof to charges fired at him by a sorely vexed district attorney. Father Divine was sentenced to one year in jail and fined $500. Within three days, following the ecclesiastic decree of the King, the judge succumbed, though the fact that he died of heart disease was not revealed to the followers. Divine's greatness was magnified a thousandfold in the eyes of his faithful. The verdict was reversed, incidentally, the next week, by the Brooklyn Supreme Court.

Subsequent trials revealed that the preacher was unusually cautious and clever. He artfully dodged answering such questions as, "Are you God?" He realized that if he answered in the affirmative he would be clapped into the Bellevue psychopathic ward and duly committed without further ado; whereas to deny it flatly would be to discredit himself before the flock. Hence, his reply has been, in meek and modest voice, "I leave that to my people." There are always hundreds of the latter in court, and like a chorus responding to a cue, they rise *en masse* and screech, "Yes, he is God! God! God!" It was in such a scene as this at a recent hearing that pandemonium broke loose and nearly turned into a race riot. Another mystery, also unsolved, is: Does Father Divine believe he is God Almighty, or has he his tongue in his cheek? However, to the thousands who follow him, there is no doubt as to his saintly identity.

What is the magnetism that this unusual personality exerts over so many people? Is there anything different in Father Divine's cult that attracts hordes of human beings? What does he say that his followers must hungrily and eagerly search for pearls of wisdom and comfort which fall from his lips? In a recent issue of *The Nation,* Claude McKay, negro writer, has depicted vividly the workings of the great Father Divine. We quote a few of the paragraphs as explanation:

> "Peace"! he cries to them, "Good health, good appetite, prosperity and a heart full of merriness. I give you all and everything." And his people respond: "God! It is wonderful! I thank you, Father." Such is the essence of the Divine message and the response it calls forth. And so greatly grew the response that he could not handle it as he had done at Sayville. More and more "kingdoms" had to be created. In whichever "kingdom" he eats, Father Divine himself serves his flock. The food goes through his hands before it is served. He pours and passes the coffee and cream in the grand style of a maître d'hotel. And he has more dignity and naturalness doing that than when he is haranguing an audience.

The kingdoms are sanitary and apparently well managed. They pay their way. The secret of their financing is Father Divine's. Rooms are rented at a dollar a week, but there is more than one person to a room. In the restaurants, meals are served for 10 and 15 cents. The food is good and plentiful. A good piece of meat and two vegetables cost 10 cents; a piece of cake or ice cream, five cents; coffee or soft drinks, three cents. There are separate kingdoms for men and women, for sex is proscribed.

The decorative motif of all the kingdoms is Father Divine. His enlarged photographs dominate the walls. Large posters with black and red lettering proclaim his virtues: "Father Divine is God." "Father Divine is the living Tree of Life, Father, Son, and Holy Ghost." "We all may take of the words of Father Divine, eat and drink and live forever."

Enthusiastic masses of colored people, with a sprinkling of whites, West Indians, and Latin Americans make up the kingdoms. About three-quarters are women. It is largely a middle-aged crowd. No prayers are said at meetings. Praise has taken the place of prayer. Of music and singing and dancing there is no end—a riotous, prancing, antic performance. Loosely the women fling themselves about, with a verve and freedom that would startle a cabaret. They toss up their skirts and contort their limbs, singing to Father Divine:

> I don't know why, I don't know why,
> I don't know why you love me so . . . .
> You put your arms around me and you took me in. . . . .

With nervous, petulant glances they turn from the men, the forbidden, and dance extravagantly with one another, colored with colored and colored with white. After they are exhausted from singing and dancing in chorus, they give individual testimony—amazing testimony, whether openly given in the kingdoms or privately related.

At Headquarters Kingdom a mulatto young woman gave a frightening yell. "Father, you did call me," she cried, "call me all the way from Seattle. Father, let me confess that I had sinful thoughts of you, sinful woman as I am. I imagined that you were just another colored minister. I have lived my life, Father, as a sample and example of a free woman among men and counted my victims. All the way from Seattle I came, Father, thinking evil. And when I entered your presence and tried to fix you, you fixed me instead. You saw straight through me, Father, the lust that was in me, and you drove it out of me into the Gadarene swine. And, oh, Father you were God in the place of the man I was looking for. You put your spirit in me and made me pure, one of your 'angels,' Father. I thank you, Father. It is truly wonderful"!

"It is wonderful!" everybody echoed and joined in singing: "All hail the power of Father's name, let angels prostrate fall."

Unlike other evangelists, Father Divine never collects any money at his meetings. He delights in making a mystery about the source of funds he uses to run his Divine Trust of large, well-appointed kingdoms, cheap restaurants (where hundreds of hungry, out-of-work persons are fed free daily) and the

splendid buses and automobiles which convey his disciples from kingdom to kingdom. He waxes sharply waggish when inquiries are made. He told a group of white parsons that he got his money from the Treasury in Washington, just like other people. At his meetings he jokes about "people who want to know where I get my money."

Followers are always ready to testify to his divinity and the wonders of his works. But ask a pertinent question about the Divine finance and immediately they clamp their lips. . . . . Perhaps a clue may be found in Faithful Mary. She was the first disiciple of Father Divine. She is middle-aged, a fine-fleshed, compact, and balanced motherly woman. She testifies that she had been insane from drink for 10 years, had been discharged from hospitals as incurable. She was living soddenly in the gutters when she heard about Father Divine. She concentrated on him, believing he was God. He lifted her up and cured her, and now she belongs to God. Faithful Mary's sincerity strikes you; she is convincing."

As Mr. McKay says, "it is truly wonderful," even as the "angels" of Harlem singsong, this frantic, prancing expression of black emotionalism in the heart of the great white city. Though lacking in technical terms, he aptly describes the type of individual who has sought out the black preacher. The majority of the flock are negroes; chiefly uneducated, untutored ones, not far removed from their savage ancestors with their primitive, tribal interest in the unnatural, voodooism, witchcraft, and the more bizarre portions of religion. Unsatisfied, emotionally unstable, and maladjusted to a civilized world, these imbalanced beings find solace, haven, and support within the protected environs of these kingdoms, where they are not only enabled, but actually encouraged to openly revert to the frenzied, untamed exhibitions and religious fervor which are characteristic of the voodooism of their ancestors.

There is no available material or published statistics on the positive results Divine has obtained; nor the amount of rehabilitation secured by his extraordinary, if not unique, method of what can be considered "free association." Such accomplishments are to be doubted strongly. However, understanding the gullible and impressionable minds that fall under his magnetic spell, the type of unstable personality that flocks to him, it is easier to comprehend the disastrous ends that have occurred to some of the disciples. In the three cases cited below, and personally observed by the writer, it seems at once apparent that the encounter with Father Divine served as a "strain"—as a precipitating factor—in producing well-defined psychotic syndromes.

CASE 1.—L. H. Female negro, American Protestant, age 41 years. Family history, birth and early development negative. Finished the sixth grade at the age of 16. Married in 1913, four children; moved with family to Long Island in 1918. Husband killed accidentally in 1921. Married again in 1924; second husband deserting her in 1929 after she had borne him one child. About this time she is said to have manifested many religious trends, and spoke of hearing the voice of God. Becoming destitute, she sought and received aid at the Sayville headquarters of Father Divine where she remained for two years. At the end of this time, she left her children with Divine and found employment with a private family as a maid. Here she was described as "talking to spiritual voices," showing unusual religious fanaticism, and frequently would fall to the floor, roll her eyes, and thrash about as though she were in the throes of some uncontrollable frenzy. Following this, she would be dazed and bewildered. These episodes culminated with her striking one of her employer's children, and subsequently being found in the neighboring woods, wandering aimlessly around. She explained these actions as "retribution for her sinning." She complained bitterly of the "miseries," and in 1931 was returned to Father Divine. Here she complained more and more of the "miseries," and finally it was necessary to regularly commit her to Central Islip State Hospital where she voiced hypochondriacal complaints, believed "something was inside her head," felt things crawling over her body, and said she would rather die than suffer. She spoke freely of religious visions, and was markedly depressed. During the next year her hypochondriacal and somatic complaints, depression and religious trends gradually disappeared, and early in 1932 she was transferred to Pilgrim State Hospital. She worked willingly on the ward, showed no behavior disorder, but spoke in a listless, indifferent fashion, especially about the future. She was paroled to the custody of her husband on December 3, 1933, with the diagnosis of dementia præcox, paranoid type. Within two weeks she returned to the hospital, claiming her husband was dissatisfied with her, having expressed fear of leaving her alone with the baby because his wife "had been crazy." He told of finding her before the kitchen stove, pressing her hands to her head as though she were suffering with a headache, and of crying for hours at a time. Immediately upon return, the patient showed excellent adjustment, was sociable, joked and mingled freely with other patients, and worked as a maid in the writer's home. Here she was extremely helpful and efficient; cooked, cleaned, ironed and washed, and never manifested any depressive tendencies. In November, 1934, the writer found a family to whose care the patient was paroled and where she now works as a combination cook and maid for which she receives board, lodging and substantial remuneration. She writes weekly to the writer, and seems pleased with her work, cheerful and happy. In a few months her parole period will have been terminated, at which time she will be discharged as recovered.

CASE 2.—A. L. Female negro, American Protestant, age 31 years. Family history unknown. Birth and early development negative. Schooling meager, yet she later worked as a cashier in an insurance office. Came to New York

in 1920 and worked as a machine operator in a dress factory. Married at 22, had one child. In November, 1932, although she refused to talk much of her outside life, she confessed to her husband that she had been "going with another man and was pregnant." She admitted staying out late at nights and of being interested in Father Divine. In December she began to eat very little, and the husband states her conduct became "peculiar." She accused him of "playing psychology" on her; became restless and confused, and often would arise in the early hours of the morning, walk to the window and scream. She became so disturbed that it was necessary to take her to Bellevue Hospital. Here, she admitted a recent abortion, and presented mild post-abortive sepsis that caused a febrile reaction and broncho-pneumonia from which she recovered. Mentally, she was dull and stuporous, inaccessible, depressed and mute. Often she made queer gestures and showed some cerea flexibilitas. Serology was negative. She was regularly committed to Manhattan State Hospital where she presented typical symptoms of catatonic stupor, had to be spoon fed, and soiled herself. Early in 1933 she began to respond to questions, though she continued to be dull, listless and apathetic. She continued to soil, often disrobed, and in the few statements she would make, said she believed some people, whom she could not identify, were talking about her. She denied her recent abortion, and refused to talk of her connection with Father Divine's cult. On March 24, 1933, with the diagnosis of dementia præcox, catatonic type, she was transferred to the Pilgrim State Hospital where she rapidly improved, became neat and tidy, took an interest in her environment, and willingly worked. However, when questioned about Father Divine, she would smile, and shake her head, as though she were concealing something. Hallucinations, delusions and morbid trends were denied. Orientation, calculation, attention and retention all good. On April 2, 1934, she was paroled to the custody of her sister, and one year later discharged as recovered.

CASE 3.—G. S. Male negro, American Baptist, age 38 years. Family history negative. Birth and childhood considered normal. Attended the first grade of grammar school only. Taught to read and write later by his wife. Worked on a South Carolina farm until 1931 when he migrated to New York (about one month prior to admission), to join the Kingdom of Father Divine. The patient had been married for 17 years, and was the father of three children, living and well. He had always been considered thrifty, friendly, a good provider, working diligently, but inclined to be religious. Yet, he suddenly deserted his wife and family four weeks before admission, and "answered the call of Father Divine in New York." The next thing heard of the patient was through the police who had found him crawling along the tracks of the elevated railway, singing and chanting religious songs. Upon endeavor to remove him, the patient became violent and aggressive and was forcibly removed to Bellevue Hospital on April 23, 1934. Here, he was resistive, violent, pugnacious; and shouting with religious fervor. He said he had dizzy spells during which the blood would rush to his head so that he did not know what he was doing. He was mute at

times. He was regularly committed to Manhattan State Hospital where he was distractible, irritable, excitable, and requiring restraint. He shouted, screamed and expectorated. He denied his name and gave another as his identity. Physical, routine laboratory and serological examinations were negative. In conversation he was rambling, irrelevant and talked of himself in the second person. He was indifferent and listless, and usually mute. However, he admitted auditory and visual hallucinations; was poorly oriented, showed memory defects, and was lacking in insight. He gradually improved, talked more freely and admitted ill-defined persecutory trends. Orientation and memory became accurate. He said, "I have faith in a good foundation; I have always been religious." In June, he denied all hallucinations, morbid trends and delusions; though he became extremely self-absorbed and seclusive. He began to work in occupational therapy classes, but with time his productions became incoherent and irrelevant. He was evasive and inclined to play on words. He was diagnosed as dementia præcox, paranoid type, and transferred to Pilgrim State Hospital on July 24, 1934. Here, he freely conversed of his "troubles," saying he had heard the voice of the devil, and in order to avoid it, had joined Father Divine whose preachings and interpretations he had followed literally. He described the conflict between "good and evil" as having "torn his head to pieces." He was again considered at staff conference and the diagnosis was changed to conversion hysteria, mixed type (anesthesia, fugue and hallucinations of hearing). He rapidly improved and on December 16, 1934, was paroled to the custody of his wife, condition recovered.

The final diagnosis of the third case was not unanimously agreed to. The writer and several others felt that the patient presented a schizophrenic syndrome and should have had that diagnosis continued. The striking paucity of references to Father Divine in all three cases is quite apparent. Subtle methods of approach, skillfully worded questions, and ingenious subterfuges met with failure. At no time, before, during or after psychosis, could any patient be induced to tell of his or her experiences in the Kingdom, or describe the life there, or divulge what Father Divine had said to them. It is remarkable that in the most dissociated state, the power of the preacher does not fail to keep the lips of the disciple sealed. Whether this silence is prompted by primitive fear, by personal embarrassment, or by the threat of eternal punishment, has not been discovered.

These three cases exemplify the sort of individual that has become easy prey for Father Divine's literal interpretation of the Gospel. The patients were middle-aged negroes, with meager educational advantages, coming from southern rural communities where the colored race is closest to its African ancestry, and en-

dowed with simple, gullible and easily molded minds. The slightest clash with reality (often the first conflict) finds their unstable make-up inadequate for the situation; and they eagerly accept the refuge and protection offered by Father Divine. In his kingdoms they discover the stimulation and symbolic encouragement that is the exact requisite for the release of the fire of a psychotic syndrome which has been smoldering within them, and which, if encountered early and properly treated, could have been arrested in the early stages, as evidenced by the brief hospitalization in all three cases.

Correspondence.

RÖNVIK PR. BODÖ, 24/5-35.

TO THE EDITOR OF THE AMERICAN JOURNAL OF PSYCHIATRY.

Dear Sir: I should be very thankful if you had place for the following in your excellent journal:

In J. M. Looney's and R. G. Hoskins' interesting publication on "The Therapeutic Use of Dinitrophenol and 3:5 Dinitro-Ortho-Cresol in Schizophrenia" in THE AMERICAN JOURNAL OF PSYCHIATRY, No. 5 (March, 1935), favorable mention is made of my experiments with thyroid medication. On page 1010 the authors write: "Hoskins and Sleeper and *more recently* Lingjærde have reported beneficial results from vigorous thyroid medication"—referring to Hoskins' and Sleeper's publication in 1930 and my *last* publication in 1933. In this connection I beg to point out that I for the *first time* reported beneficial results from thyroid medication in *Statistique des hospices d'aliénés pour l'année 1928* (*Statistique Officielle de la Norvège série VIII*). In 1929 I published in *Nordisk Medicinsk Tidsskrift* (Northern Medical Journal) a paper (in Norwegian): "Psychoses treated with thyroid and liver," reporting the results from thyroid treatment of 38 patients under control of the basal metabolism.

Sincerely yours,

OTTAR LINGJÆRD, M. D.
Medical Superintendent of
The Rönvik State Hospital. Norway.

Comment.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY.

The most significant step yet taken on this continent in establishing the status of the qualified psychiatrist and neurologist is the recent incorporation of the American Board of Psychiatry and Neurology with executive offices in Washington, D. C., and which is the fruit of the associated efforts over a considerable period of The American Psychiatric Association, the American Neurological Association and the American Medical Association.

The Board is composed of 12 members, four each from the three Associations named, the American Medical Association being represented by two neurologists and two psychiatrists elected by its Section on Nervous and Mental Diseases. Psychiatrists and neurologists will always be represented by equal numbers on the Board.

In a booklet recently issued the chief functions of the Board are defined as follows;

(a) To determine the competence of specialists in psychiatry and neurology.

(b) To arrange, control and conduct investigations and examinations to test the qualifications of voluntary candidates for certificates issued by the Board.

(c) To grant and issue certificates or other recognition of special knowledge in the field of psychiatry and neurology to successful voluntary applicants therefor.

(d) To serve the public, physicians, hospitals and medical schools by preparing lists of practitioners who shall have been certified by the Board.

The By-Laws of the Board provide for separate certification in psychiatry and in neurology, or a combined certification for those qualified in both fields. Each applicant for a certificate must establish that—

(a) He is of satisfactory ethical and professional standing.

(b) He is now a member of the American Medical Association, or a member of such Canadian medical societies as are approved by the Council on Medical Education and Hospitals of the American Medical Association.

(c) He is a physician duly licensed by law to practice medicine.

(d) He has received adequate training in psychiatry or neurology, or both, as a specialty.

The By-Laws also provide that—

No candidate shall be eligible for examination by the Board until he shall have completed not less than five years of special training and experience in neurology or psychiatry for a single certificate, or not less than six years of training and experience for certification in both neurology and psychiatry.

Applicants for certification will fall into four classes as follows:

CLASS I.

Physicians who graduated from medical school in 1919 or before and who have carried on specialized practice in neurology and/or psychiatry for at least 15 years are to be considered on their professional record and passed, if satisfactory to the Board, or further evidence of qualification or examination may be required. Each applicant shall pay an *application fee* of $25.00 with an additional *certification fee* of $25.00 in either neurology or psychiatry, or both, whether or not an examination is required.

A candidate in Class I who has received certification in either psychiatry or neurology may apply within three years for certification in the other field without additional fee. After three years such application shall be considered as a new application with corresponding fees.

When certification in Class I has been refused after an application the candidate may file application for reconsideration within three years without additional fee. After three years such application for reconsideration shall be considered as a new application with corresponding fees.

CLASS II.

Physicians who graduated from medical school after 1919 and up to and including 1929 and who have practiced the specialty of psychiatry and/or neurology for at least five years will be required to pass an examination in psychiatry or neurology, or both, details of which will depend upon the type of training which the candidate has received.

CLASS III.

Physicians who have graduated after 1929, up to and including 1934, will be required to pass an examination to satisfy the Board that they have adequate knowledge of all subjects specified in the By-Laws for candidates graduating after 1934. Their previous training and experience must be acceptable to the Board. The various topics shall be covered but with due consideration of the exigencies of the situation.

CLASS IV.

Candidates graduating from medical school after 1934 shall fulfil the preceding general requirements as given in Section 3 of Article VII. (These requirements include the educational qualifications of applicants graduating from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association; completion of a general interneship of not less than one year in a hospital approved by the same Council; a special three year training period in psychiatry and/or neurology, at least 18 months of which shall be spent in hospitals, clinics or laboratories recognized by the Council of the American Medical Association, and approved by the American Board of Psychiatry and Neurology as suitable to provide such training; an additional period of not less than two years of practice of psychiatry and/or neurology.

The Board will hold an annual meeting in December of each year and special meetings at times and places to be specified. Applications from candidates made on the official application blanks, and accompanied by the application fee, must be in the hands of the Secretary of the Board not less than 60 days before the date of the meeting at which they are to be considered.

The dates and places of examination will be announced in the *Journal of the American Medical Association*, in the AMERICAN JOURNAL OF PSYCHIATRY, in the *Journal of Nervous and Mental Diseases* and in the *Archives of Neurology and Psychiatry*. Examinations will be held in psychiatry and neurology independently, and those applying for certification in both subjects will be required to pass both examinations.

The ultimate goal of the examinations which will be both written and practical is, as the Board expresses it, to distinguish between the specialist-in-fact and the specialist-in-name. *"The manner of examining both neurological and psychiatric patients and the reasoning and deductions therefrom will constitute the most important part of the examination."*

Each candidate is required to sign the following pledge:

I hereby make application to the American Board of Psychiatry and Neurology, Incorporated, for the issuance to me of a certificate of qualification as a specialist in (a) Psychiatry; (b) Neurology; (c) Psychiatry and Neurology (check the one desired) and for examination relative thereto, all in accordance with and subject to its rules and regulations. Upon the issuance of the certificate I agree to and do become bound by the By-Laws of the American Board of Psychiatry and Neurology, Inc., insofar as applicable.

I agree to disqualification from examination or from the issuance of a Certificate of Qualification or to forfeiture and redelivery of such Certificate

of Qualification in the event that any of the rules governing such examination are violated by me or for any one of the reasons set forth in the By-Laws. I agree to hold said American Board of Psychiatry and Neurology, Inc., its members, examiners, officers and agents, free from any damage or claim for damage or complaint by reason of any action they, or any of them may take in connection with this application, such examination, the grade or grades given with respect to any examination, and/or the failure of said Corporation to issue to me such Certificate of Qualification.

The American Board of Psychiatry and Neurology, Incorporated, is presently constituted as follows: Dr. H. Douglas Singer, Chicago, Ill., President; Dr. C. Macfie Campbell, Boston, Mass., Vice-President; Dr. Walter Freeman, Washington, D. C., Secretary-Treasurer; Dr. Louis Casamajor, New York City; Dr. Clarence O. Cheney, New York City; Dr. Franklin Ebaugh, Denver, Colo.; Dr. George W. Hall, Chicago, Ill.; Dr. J. Allen Jackson, Danville, Pa.; Dr. Adolf Meyer, Baltimore, Md.; Dr. Lewis J. Pollock, Chicago, Ill.; Dr. Edwin G. Zabriskie, New York City; Dr. Lloyd H. Ziegler, Albany, N. Y., members.

Further information may be obtained by addressing the Secretary, Dr. Walter Freeman, 1726 Eye Street, N.W., Washington, D. C.

SECOND INTERNATIONAL CONGRESS ON MENTAL HYGIENE.

Six years will have elapsed since the First International Congress in Washington, when the Second International Congress on Mental Hygiene convenes in Paris, July 27-31, 1936.

The officers of the Congress are:

Honorary President: Dr. Henri Claude.

President of the Congress and Chairman of the Executive Committee: Dr. Edouard Toulouse.

Vice-Chairman of the Executive Committee: Dr. Auguste Ley.

Permanent Secretary: Mr. Clifford W. Beers.

Secretary-General: Dr. Georges Genil-Perrin.

Treasurer: Robert Demachy.

Chairman of the Program Committee: Dr. René Charpentier.

Vice-Chairman of the Program Committee: Dr. Auguste Ley.

Chairman of the Committee on Organization and Publicity: Dr. Jean Lépine.

Vice-Chairman of the Committee on Organization and Publicity: M. Joseph Delaitre.

As at the Washington Congress leaders in mental hygiene in the principal countries of the world will be heard at the Paris meeting. The preliminary program shows speakers from Argentina, Austria, Belgium, Denmark, England, France, Germany, Italy, Netherlands, Portugal, Scotland, Spain, Sweden, Switzerland, U. S. S. R., United States, Yugoslavia.

At the opening session the President, Dr. Edouard Toulouse, will address the Congress; and reports will be submitted by Clifford W. Beers, General Secretary of the International Committee for Mental Hygiene, and by Dr. Georges Genil-Perrin, Secretary-General of the Second International Congress.

Of special interest will be the discussions of eugenics and sterilization scheduled for the afternoon session of the opening day. Professor Ernst Rüdin of Munich will speak on the rôle of eugenics in the prevention of mental diseases. Rüdin, as every one knows, is a pioneer and one of the leading world authorities in the study of heredity of mental disorders and particularly of the application of Mendelian principles to the psychoses. And now by reason of his official position under the German government and the duties he has been called upon to assume in carrying out the national policies with regard to race hygiene, his utterances will have exceptional significance. A very spirited discussion of the subject of eugenics may be anticipated.

All phases of present day mental hygiene activities will be dealt with in the Congress, including clinical, educational, social, statistical, legal, occupational, administrative and research topics.

Membership in the Congress will be by registration. *Active Members,* who will pay a fee of 125 French francs, may present papers and take part in the discussions. They will receive a copy of the Proceedings of the Congress. *Associate Members* (fee 75 French francs) may attend all sessions but do not take part in the discussions. The various trips, visits to institutions, etc., will also be open to them. They will not receive a copy of the Proceedings. Physicians may enroll only as active members. Others may enroll either as active or associate members as they may desire.

Those desiring to take part in the program should communicate before January 1, 1936 with the Chairman of the Program Committee, Dr. René Charpentier, 119 rue Perronet, Neuilly-sur-Seine, France.

Membership dues may be sent to the Treasurer of the Congress, M. Robert Demachy, 27 rue de Londres, Paris.

Information concerning the Second International Congress on Mental Hygiene may conveniently be obtained by persons living in the United States or Canada by addressing Mr. Clifford W. Beers, Permanent Secretary of the Congress, 50 West 50th St. New York City.

News and Notes.

MEETING OF THE AMERICAN PSYCHIATRIC ASSOCIATION.—The ninety-first annual meeting of The American Psychiatric Association was held at the Mayflower Hotel, Washington, D. C., May 13 to 17, 1935.

On Monday, May 13, the two sections, on Convulsive Disorders and on Forensic Psychiatry, had morning and afternoon sessions. The section on Convulsive Disorders conducted an informal dinner on Monday evening, the entertainment furnished surpassing even the witty program announcement.

The regular sessions of the Association began on Tuesday, May 14, Dr. C. Fred Williams, the President presiding. The address of welcome was given by Dr. A. B. Bennett, the President of the Medical Society of the District of Columbia, Dr. Cheney, President-Elect responding for the Association.

Taking as the subject of his presidential address "Administrative Psychiatry," Dr. C. Fred Williams discussed some of the most important present-day problems of psychiatry, with constructive suggestions for meeting the same. Dr. Williams' address is printed in full in this number of the JOURNAL.

On Wednesday morning, May 15, the Association held a joint session with the section on Psychoanalysis.

There were two section meetings on Tuesday, Wednesday and Friday, three on Thursday. One session was devoted to a symposium on the "Material dealt with as Personality-function by Various Workers"; another to a discussion of "The Psychiatric Implications of Education." Included also among the large number of papers were several devoted to organic situations; studies from the laboratory; administrative topics; case studies, and miscellaneous studies.

On Tuesday and Wednesday, May 14 and 15, films were shown depicting various mental hospital activities.

Located near the meeting halls were the scientific and technical exhibits. Various studies from the laboratory and from the field

of clinical psychiatry were presented in the form of a scientific exhibit. Because of the practical character of the exhibits shown, the exhibit spaces were visited by a great number of members.

The commercial exhibits, also located near the meeting halls, contained displays of particular interest and value to mental hospital administrators.

Arrangements were made for members and guests to visit the many points of interest in and about Washington. Special invitations were received to visit the Division of Investigation, Department of Justice; the Army Medical Library, where Major Edgar E. Hume, the librarian, arranged an exhibit of rare works on psychiatry, psychiatric journals and photographs of prominent psychiatrists; the Division of Physical Anthropology, U. S. National Museum; the National Zoological Park; and the Construction Division of the Veterans Administration.

The Committee on the Special Program for Ladies provided an interesting series of events for the entertainment of guests, including a tea at the White House.

On Wednesday evening, May 15, the annual dinner was held in the ballroom of the Mayflower Hotel, which was attended by almost seven hundred members and guests. The annual address was given by Major Edgar E. Hume, Librarian of the Army Medical Library, his subject being "The Drama of a Great Medical Library."

After the address, the George Washington Glee Club of 120 voices rendered a splended musical program, under the direction of Dr. Robert Howe Harmon, Mrs. Harmon at the piano. Dancing followed the musical entertainment.

On Friday afternoon, May 17, the members of the Association enjoyed a visit at St. Elizabeth's Hospital, with a buffet luncheon, and a tour covering the principal points of interest.

In accordance with the report of the Board of Examiners and upon recommendation of the Council, the Association elected Dr. Julius Wagner-Jauregg, Vienna, honorary member; one associate member to member; 29 associate members; 114 members; 100 fellows.

The following officers were elected for 1935 to 1936:

President: C. O. Cheney, M. D., New York, New York.
President-Elect: C. Macfie Campbell, M. D., Boston, Mass.

Secretary-Treasurer: William C. Sandy, M. D., Harrisburg, Pa.

For Councillors for three years: C. Fred Williams, M. D., South Carolina; Walter L. Treadway, M. D., Washington, D. C.; J. Allen Jackson, M. D., Danville, Pa.; George H. Stevenson, M. D., London, Ont.

Julian W. Ashby, M. D., Raleigh, N. C. was elected auditor for three years.

The section on Convulsive Disorders elected as chairman C. A. Marsh, M. D., Pennsylvania, and Stanley Cobb, M. D., Massachusetts as secretary; the section on Forensic Psychiatry, Raymond F. C. Keib, M. D., New York as chairman, V. C. Branham, M. D., New York as secretary; the section on Psychoanalysis, Richard H. Hutchings, M. D., New York as chairman, Smith Ely Jelliffe, M. D., New York as vice-chairman and Nolan D. C. Lewis, M. D., Washington, D. C., as secretary.

The president of the Association designated as the officers of the new section on Mental Deficiency, Robert H. Haskell, M. D., Michigan, as chairman, and Oscar J. Raeder, M. D., Massachusetts, as secretary.

The Association voted to hold the next meeting in St. Louis, Missouri, the time to be decided upon later by the Executive Committee.

The total registration was 1264 of which 552 were members, making the Washington meeting even more successful than had been anticipated.

WILLIAM C. SANDY, M. D.

Harrisburg, Pa.

NOTICE OF PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS OF THE AMERICAN PSYCHIATRIC ASSOCIATION.—The following amendments to the Constitution have been proposed, to be acted upon at the 1936 meeting of the Association:

Article IV. First paragraph; strike out the word "vice presidents."
Article IV. Second paragraph; strike out entirely.
Article VI. Section II; strike out the words "vice presidents."

The following amendments to the by-laws have been proposed, to be acted upon at the 1936 meeting of the Association:

Article IV, Section IV; strike out the words "by virtue of his office shall be a Vice-President."

Article VI, Section II; strike out the words "and the Chairman shall become Vice-President of the Association."

WILLIAM C. SANDY, M. D., *Secretary.*

FELLOWSHIPS IN EXTRAMURAL PSYCHIATRY.—A limited number of fellowships have been provided by The Commonwealth Fund for training in extramural psychiatry. These fellowships are to be administered by The National Committee for Mental Hygiene, through whom fellows are to be assigned for one or two years to a selected child guidance clinic, the term and plan of the fellowship to be determined by the peculiar needs of the fellows. Candidates for fellowship award should have had at least two years of psychiatry in an approved mental hospital service, in addition to other qualities fitting them for extramural service. This provision of training fellowships comes in response to a definite paucity of personnel in this field. Accordingly, other conditions as to age, sex, marital status, etc., must be governed by individual cases and by the nature of current demand. Requests for further information about these fellowships, and applications therefor, should be addressed to Dr. George S. Stevenson, The National Committee for Mental Hygiene, Room 822, 50 West 50th Street, New York, N. Y.

VOCATIONAL PLACEMENT IN PSYCHIATRIC SOCIAL WORK.—In view of its interest in promoting standards of placement in the field of professional psychiatric social work, the National Committee for Mental Hygiene has been cooperating informally for a number of years with the Joint Vocational Service, national non-profit-making placement agency for social workers and public health nurses. Recently, the cooperative relationship existing between the two agencies has been established on a more formal basis, corresponding in general with that which already obtains between the Joint Vocational Service and certain other national agencies, such as the Family Welfare Association of America, the National Organization for Public Health Nursing, and the Child Welfare League of America.

Under the new arrangement, requests from employers and from applicants for placement in psychiatric clinics or hospitals may be addressed, as formerly, either to the National Committee for Mental Hygiene or to the Joint Vocational Service. It will be understood, however, that all requests not referred in express confidence

to one or the other agency will be handled routinely in consultation, and that the required fee for placement will be collectible by the Joint Vocational Service. The National Committee for Mental Hygiene will bring to bear its knowledge of individual workers. local possibilities, and desirable standards, while the Joint Vocational Service will make available its highly pertinent experience in placement and its exceptional file of records on personnel.

RAND EPILEPTIC ASSOCIATION OF SOUTH AFRICA.—For a number of years the Johannesburg Society for Mental Hygiene has been considering ways and means for dealing with unemployed but employable epileptics, that is cases ordinarily considered uncertifiable. With a small fund raised by subscription and augmented by grants from the Johannesburg Society and the National Council for Mental Hygiene, there was launched in May, 1934, a new venture which seems to offer considerable promise.

As reported in the *South African Medical Journal* four epileptics and a non-epileptic foreman were set to work clearing a plot of ground near Johannesburg for the growing of flowers, for which orders were taken and deliveries made by voluntary workers. Each man receives a small weekly salary out of which he pays for his own board at a nearby house.

In order to give it status this employment scheme was registered under the Companies Act under the name of the Rand Epileptic Employment Association, with memberships liable to an assessment of one pound in case the Association is unable to balance its budget.

Making a preliminary report on the operation Dr. Morris J. Cohen, president of the Association, refers to the markedly beneficial effects upon the seven cases presently under observation. The congenial and safe occupation, sense of security and the companionship and outdoor life appear to have resulted in a reduction of the incidence of fits, and generally improved mental and physical condition. The scheme is under careful medical guidance and the men report at regular intervals to the general hospital, but it is not stated what drug treatment, if any, is used in connection with the occupational therapy. The sponsors of the movement are enthusiastic over the results so far attained and are contemplating further extension of this scheme.

DR. FREDERICK TILNEY BECOMES DIRECTOR OF THE NEUROLOGICAL INSTITUTE AT NEW YORK.—The newly created office of medical director of the Neurological Institute of the Columbia-Presbyterian Medical Centre has been filled by the appointment of Dr. Frederick Tilney, professor of neurology at the College of Physicians and Surgeons of Columbia University. Dr. Tilney has been on the staff of the Institute for a considerable number of years and has served as chairman of the Committee on Medical Research.

The present plans contemplate extensive developments within the department of neurology, both in the experimental and clinical fields. The trustees' announcement states:

> It is also planned to enlarge the new department of child neurology, which was organized recently with Dr. Bernard Sachs as director, through a substantial gift of the Friedsan Foundation.
>
> In addition to the existing laboratories the enlarged programme for scientific research will call for much new space in the Institute's building at Fort Washington Avenue and West 168th St. Plans are in preparation for extending laboratory facilities to several additional floors.

The Neurological Institute, which was organized in 1909, removed to its present location in the Columbia Medical Centre in 1929.

DIRECTOR, PSYCHIATRIC DIVISION, BELLEVUE HOSPITAL, NEW YORK.—The position of director of the Division of Psychiatry in Bellevue Hospital made vacant by the retirement of Dr. Menas Gregory has not yet been filled, and the date for the examination of applicants originally set for May 29, 1935, has been advanced to October 4, 1935.

This examination is open to all legally qualified physicians who are citizens of the United States. Candidates must have had at least 10 years experience in the treatment of patients suffering from mental disorders, of which at least five years must have been spent as a member of staff of a recognized mental hospital, or of the psychiatric division of a general hospital, or the equivalent.

Further information concerning the examination or requirements for appointment may be obtained by addressing the Secretary of the Municipal Civil Service Commission, Room 1400 Municipal Building, Manhattan.

REVISTA DE NEUROLOGIA E PSYCHIATRIA DE SÃO PAULO.—This new Brazilian quarterly made its first appearance in October, 1934. It is issued under the general editorial direction of Dr. James Ferraz Alvim and Dr. E. de Aguiar Whitaker as Secretary of the editorial board. The field which the *Review* proposes to cover comprises departments of normal and pathological anatomy, radiology, criminology, laboratory procedures, therapeutics, pediatrics, ophthalmology, neurology and psychiatry. Each of these departments is represented on the editorial board by specialists in their respective fields.

The October, 1934 number contains the following articles: The Calcification of the Falx Cerebri, by James Ferraz Alvim; The Law of Bastian, by E. Vampré and Paulino Longo; Dissociation of the Cremasteric Reflex, by Adherbal Tolosa; Acute Benign Meningitis, by Fernando de Oliveira Bastos; The Adrenalin Test as a Diagnostic Measure in Psychiatry (Dresel technique), by E. de Aguiar Whitaker, Mario Yahn and Celso P. Silva; The Question of Criminal Acts Committed in a State of Unconsciousness, by A. Teixeira Lima and O. Bierrenbach de Castro; Cerebral Rachitism or Rachitic Dementia, by Theodor Goett; Infection of the Biliary Passages and Mental Disturbance, by Mario Yahn; Some of the Newer Methods of Treatment in Neuropsychiatry, by Orestes Rosseto.

A valuable feature is the conclusion of the Spanish presentation of each article by summaries in several other languages, notably French, German, English and Italian.

The *Review* presents also reports of scientific meetings and reviews from the literature, chiefly Spanish and Italian. The first number contains 130 pages, and the second number 165 pages.

This new journal promises to take a worthy place as an exponent of neurology and psychiatry in Latin America.

NEW ASSOCIATION HEADQUARTERS IN NEW YORK CITY.—The American Psychiatric Association announces the removal of its offices to the New York Academy of Medicine, 2 East 103d Street, New York City.

Because of the rapid growth in recent years in membership and activity, the Council of the Association several months ago recog-

nized the need for larger quarters and authorized Dr. Clarence O. Cheney, President of the Association, and Dr. C. Charles Burlingame, Chairman of the Committee on Public Education, as a special committee to select new quarters.

The committee felt that there were certain advantages in the location of offices in the Academy which could not be found elsewhere. The location is accessible and convenient; the professional adjuncts of the Academy, including the Medical Library are available for use; the quarters are comfortable and spacious enough to meet the requirements of the staff and to furnish adequate meeting rooms for the various committees of the Association.

Members visiting New York will always be welcome here.

Book Reviews.

CHILD GUIDANCE CLINICS, A QUARTER CENTURY OF DEVELOPMENT. By *George S. Stevenson, M. D., and Geddes Smith.* (New York: The Commonwealth Fund. London: Humphrey Milford, Oxford University Press, 1934.)

This is a survey of "the major patterns of the development of child guidance clinics from its origin in 1909," and a brief report of "some currents of present-day thinking about child guidance." The book is divided, generally, into four parts:

1. A discussion of the needs that gave rise to the establishing of child guidance clinics.

2. A discussion of: (a) the scientific knowledge and facilities available to meet this need; (b) the establishment of the clinic as a combination of these two; (c) the development of the child guidance clinic under the demonstration project sponsored by the Commonwealth Fund.

3. A discussion of the comparison between present day clinics and pioneer clinics wherein are stressed the following points:

(a) The twofold function of the present-day clinic (therapy and prevention) in contrast to the original function as an attack on problems such as delinquency.

(b) The consideration of behavior to-day as a "corollary of a basic reaction pattern" rather than as an isolated phenomenon.

(c) The emphasis of a greater interrelationship between the four-fold contributions: social, physical, psychological and psychiatric; and, in this regard, the tendency towards greater flexibility of method.

(d) A discussion of present-day clinics from the point of view of research and future possibilities. Of special interest was this chapter on Evaluation and Research where the authors discuss the evaluation of therapy in a clinic and research as a means whereby this therapy can be given a firmer scientific footing.

The book is very clearly written. In this short survey, the authors have covered a wide field, and have brought out many valuable and significant features concerning the development of child guidance clinics.

It should be of interest, not only to those working in this field, but to parents and teachers, for, in taking us back to the beginnings of clinical work, and carrying us so clearly along the development, step by step, the authors enable us: 1. to get a better understanding of the significance and need of child guidance; 2. to better evaluate the field of clinical work as an answer to this need; 3. to understand and evaluate our own clinical work, not only in its developmental setting; but, what is more important, in terms of its future possibilities.

E. P. LEWIS,
Toronto.

FACTS AND THEORIES OF PSYCHOANALYSIS. By *Ives Hendrick, M. D.*, (New York: Alfred A. Knopf, 1934.)

In spite of the fact that a large number of books are being published on psychoanalysis it is hard to find a manual which outlines the subject clearly, competently and honestly. Of late, however, there have appeared two books which are notable exceptions. One is by Karen Stephen on "Psychoanalysis and Medicine" which although extremely up-to-date and intelligent is somewhat technical and it is doubtful whether one can really appreciate it without a subjective experience in analysis. The other book is the one by Hendrick which in the reviewer's opinion is the best monograph which thus far has appeared on the subject. The book is divided into four parts, the first part being a discussion of the "facts of psychoanalysis" which includes the unconscious, the phenomena of psychosexuality and punishment phantasies, and psychoneuroses. One may question the use of the word "fact" if we mean by fact the quality of something being actual in the physical world. The author qualifies his term, however, by stating that it means material which is brought up regularly by patients in analysis and which is the matrix upon which the theories of analysis are based. The attractiveness of the volume lies in the fact that the author is conservative and shows the critical attitude which is more characteristic of the continental than of the Anglo-American point of view. In reference to the present point of view he states: "psychoanalysis now became the detailed review of the patient's whole personality and social, professional and sexual adaptation, rather than the elucidation and cure of individual symptoms." This point of view immediately stamps an analysis as an investigative procedure as well as a therapeutic technique with emphasis on the research possibilities together with the treatment of the individual symptoms. Instead of giving a large number of examples, the author gives a fairly detailed review of a few cases with illustrations of the various points which he brings up in the book. In Part II the author discusses the theories of psychoanalysis, including instincts, psychosexuality and aggression and the structure of the total personality. Here the author gives clear, succinct definitions of the Freudian metapsychology with a rather full discussion of the death-instinct in which he does not hesitate to express the doubts, raised by many analysts, about its existence. The chapter on anxiety is unfortunately too schematic and is not presented with the same dynamic force as has been done by Stephen. In Part III the author discusses therapy by psychoanalysis in which one finds the clearest presentation of the aims of psychoanalytic therapy and one really ought to read it to appreciate it rather than review it in a few brief lines. The chapter which interests the institutional psychiatrist most is one on the relationship of psychoanalysis to psychiatry and there the author very amusingly shows how intellectual appreciation of a personal problem helps very little, as it does not indicate how the individual becomes involved in such a problem through forces which have been operating for a long time and of which the individual himself is quite unaware. As an illustration the author cites the case of a man who came to a psychiatrist complaining that

he was irritable with his wife and wasted his energy on trifles. The psychiatrist in the out-patient department learned that the patient had infrequent and restricted intercourse with his wife and advised him to have greater freedom of sex expression. Relief may or may not be obtained but it is obvious that the problem is not solved because the important thing is not the frequency of sex relations but the unconscious factors which prevented the spontaneous fulfillment of the patient's sex inclinations. Of course, one may say that in psychiatry as in general medicine one's aim should be symptomatic relief rather than etiological cure but it is obvious that this point of view is just as unsatisfactory in psychiatry as it is in scientific medicine. The author is quite conservative about the treatment of the psychoses and with reference to schizophrenia he advises psychoanalysis only in carefully selected cases in which the psychosis is incipient rather than active, stressing the fact that careful judgment is most important in such cases and that only well-trained psychiatrists should attempt it. The last chapter deals with the present status of psychoanalysis, reviews its development in America and discusses training methods. Psychoanalysis is still a controversial subject. Its complete rejection only smacks of intolerance and if one wants to get a clear idea of what modern analysis is, one could not find a more careful presentation of the subject.

KASANIN,
Howard, R. I.

HALLUCINATIONS ET DÉLIRE. By *Henri Ey.* (Paris: Librairie Felix Alcan, 1934.)

This short volume, which we are led to believe forms the beginning of a series by the same author, presents another approach to the persistent problem of hallucinations. The book is an elaboration of a paper given to the Medical-Psychological Society of Paris and has a preface by the celebrated Dr. Seglas.

In his foreword, Dr. Seglas who has written articles concerning this field for almost five decades, states the obvious fact that hallucinations have been made the object of study for many years; yet, in spite of this research little is known, apart from a better understanding of those which we designate as organic, toxic or visual. Hallucinations which form part of the total personality of the individual and are auditory in nature, have been very little investigated. He offers the suggestion that the indifference of scholars to these phenomena is due in part to the views of earlier thinkers. Hallucinations were considered as merely a pathological change in perception—"a perceiving without an object." Diagnosis, therefore, has consisted merely in classifying by sense modalities. This writer, he insists, presents a review of earlier writers—but also offers in a modest but arresting fashion, to explore the domain of these auditory phenomena especially in so far as they have verbal character.

Preceding the work proper Dr. Ey leads us in a short discussion on the idea of automatism in mental activity. Such self-impelled action is very evident in many pathological cases, he affirms.

Part I offers an extensive treatment of the idea of automatism as it relates to "inner" speech. The evolution of this conception is traced throughout the years and a description of "psycho-motrice" hallucinations given.

Part II is devoted to verbal automatism in the various forms of mental disease. Numerous case studies are presented showing the relationship existing between "clear" and "delirious" thinking. Verbal automatism is found to be present in both manic and depressed patients as well as those suffering from hysteria.

A bibliography of over 200 titles concludes the work.

We agree with Seglas that the book will be welcomed by those interested in the field of psychiatry as it concerns the baffling problem of hallucinations. The reasoning throughout is speculative but logical. The work marks an advance in our knowledge of the thinking of mentally ill persons.

WILFRED G. SCOTT.

MENTAL DEFECT. By *Lionel S. Penrose.* (New York: Farrar and Rinehart, 1934.)

The author introduces his topic by an absorbing, readable, and cursory outline of the early historical recognition of mental deficiency as portrayed in its former nomenclature. From here he deftly merges the early background with the modern day conception of mental deficiency and the relatively new methods of identification (Mental Tests—by Prof. Binet, with a note on their later revision in America.)

Together with the remote and immediate historical depiction of this topic is incorporated the various legal distinctions between the different types of mental abnormality. A concise interpretation of the legal aspect in the light of the definitions in the Mental Deficiency Acts is very lucidly and fascinatingly presented.

The physical phase of study is very cleverly written avoiding as much as possible monotonous detail and briefly explaining the technical terminology, which makes the book a pleasant piece of educational reading matter for the laity.

The various types and their associated physical stigmata are treated in brief yet adequate circumference. The nervous, vascular, respiratory, alimentary, endocrine, and skeletal systems are discussed in the light of most recent discoveries, and the reading of this topic is as pleasant for the layman as it is useful for the profession.

The psychological aspect of the study is very competently treated, and many new logical and practical ideas are incorporated in this discussion. The psychophysical tests of Weber and Wundt are discussed and a further association is made between the possibilities of these tests and the intelligence tests of Binet and Simon. The author apparently believes that a great deal of knowledge is to be acquired in the realm of psychophysical testing, which at present is eclipsed by the enthusiasm for intelligence tests. A further study in both branches and a cogent association of the results of the research work will no doubt produce a great fund of working knowledge.

The author has very capably prepared a chapter on personal and family history. It is brief yet a comprehensive view of this phase of enquiry. Many interesting and vital references are made to the works of unimpeachable authorities. A valuable insight is given into the art of history taking and an interesting pedigree chart is included by way of example. The topics of prenatal and post-natal circumstances and their effect upon the possible mental development of the child makes it a chapter which will be read most avidly. The technical portion of this discussion is likewise treated. The analytical methods are thoroughly outlined in a manner which is not beyond the comprehension of the unedified subject. The topics of Mendelian ratios, gene frequency and correlations are set forth in a competent style.

The diverse pathological types are discussed in the light of the most recent discovery and the data presented in a very understandable fashion.

The phase of the work dedicated to Mongolism was particularly interesting to the reviewer. A graphic description of the type is given with their various physical and temperamental characteristics together with the accepted knowledge of its etiology.

The final chapter of the book is termed Treatment. The chapter heading may sound futile and depressing but when the work is thoroughly perused the reader finishes the chapter with a profound feeling of relief. A special problem is presented in this chapter which is of interest to everyone to-day—"Persons who are able to perform mental tests fairly satisfactorily, or perhaps even well, but who, by reason of difficulties in their personal temperament and character, are either unable to learn or unable to respect the usual canons of behaviour current in the society in which they live. Such persons, if they become adult before they fall under the observation of medical authorities, may become confirmed criminals—perhaps being convicted over and over again for petty thefts—and they end up either in gaol or in an institution for mental defectives."

Under the same heading, *i. e.*. Treatment, is a very competent discussion of the individual, institutional and social aspects of mental deficiency. The author does not allow himself to be led away by a fantastic imagination, and present to the reader a paraphrase of Sir Thomas More's Utopia or animistic platitude of the future, but he outlines the successful measures of institutionalization, segregation, training, parole, working, probation and discharge together with selective sterilization. To the qualified reader it is one of the most interesting, intelligent, and authentic presentations of the topic that has come to the stands. It is a book which should be read by all persons honestly interested in the social aspect of our civilization. The reader will be amply repaid for any honest concentration he may give this book.

S. J. W. Horne.

THE INSTITUTE FOR CHILD GUIDANCE, 1927-1933. By *Lawson G. Lowry, M. D., and Geddes Smith.* (New York: The Commonwealth Fund, 1933.)

As stated in the foreword, this report describes the activities of the New York Institute for Child Guidance, indicating its development and the results

of its work. It is brief—67 pages and a well ordered appendix. To quote Dr. Lowry, the objectives of the Institute which opened in 1927 were,—

"(1) to train a limited number of psychiatrists in the technique of child guidance, so as to fit them for administrative and professional leadership in community agencies with broadly educative as well as clinical functions.

"(2) to train clinical psychologists to fit into a child guidance team, not only to do psychometric tests, but also to take account of the total personality of the subject.

"(3) to continue to provide training facilities for social workers in a special centre differing from the mental hospital or community clinic, offering greater opportunity for conference between student and psychiatrist, adjustment of supervision to the learner's need and selection of case material."

How these objectives were attempted is described in the balancing of case load and training requirements, the dealing with applications for service, how the clinical teams made up of psychiatrist, psychologist, social workers and fellows formed semi-independent clinics for actual work, the experimental working out of a training system which offered most to each of these three groups, the sources of fellowships and the educational reach of the Institute.

During its six years of work the Institute trained, in one way or another, 50 psychiatrists, 32 of whom were on fellowships for at least one full year. These had varying backgrounds and experience, but nearly all had to be taught how to work with children, to consider both the child and his environment and to learn the value of good psychiatric social work. This training is outlined.

The objectives of the psychologist's training were not only to use the accepted psychometric tests but to collaborate fully in the group study.

The psychiatric social workers outnumbered the other groups. In six years 289 completed a course of training whose general content was uniform for the entire group, but there were differences in detail. Opportunity was given "to translate theoretical knowledge of behavior into a practical sense of what to do in situations involving people (including herself), to adjust her work to a clinical setting, and to be able through experience to contribute to any case work field which she might enter."

By means of a series of steps—the supervising conference, the case conference, the initial staff conference, treatment process, discussion with administrative superiors and general staff conferences—it was sought "to develop in each member of the clinical team the capacity to balance individual responsibility for the *case as a whole* with respect for the other workers on the case."

During six years clinical service was requested from the Institute for 3,599 cases and given to 2,641 cases.

E. P. Lewis,
Toronto.

The Patient and the Weather. Vol. III. By *William M. Petersen, M. D.* (Ann Arbor: Edwards Brothers, Inc., 1934.)

Volume III of this series is published before Volumes I and II; hence, unfortunately, it is read in the absence of a proper background. This, how-

ever, is largly overcome by the completeness of the data presented, and Dr. Petersen makes an excellent case for his thesis that psychotic episodes are to an important degree conditioned by meteorological episodes. The relation of the weather to mental diseases is a problem which deserves further research, and Dr. Petersen's work appears to show that there is a scientific foundation for the age-old belief in "lunacy." Statistics are presented to demonstrate that deviations from the normal in the directions of either genius or insanity, are more common in certain sections of the United States than in others; that the regions most prolific in such deviations are in general the regions of the storm-tracks; that the date of conception, as related to the season of the year, has an important bearing on the individual's subsequent mental stability; that acute psychotic episodes may be precipitated by sudden meterological changes; and finally that the associated measurable changes within the body are the improperly compensated chemical swings associated with environmental disturbances taking place through the mediation of the autonomic system. There is such a wealth of material presented and the arguments are presented in such a convincing manner that one is led to agree with the author and to suspend to some extent one's critical judgment. It is only too obvious, however, that his conclusions need an extremely careful scrutiny as in general there is a certain amount of vagueness and looseness in the manner in which he makes the various correlations. A great amount of labor has evidently been expended on working up the interesting case material; this is presented in the form of graphs, which clearly correlate the laboratory and meteorological data. The results of Dr. Petersen's work are very stimulating and thought-provoking as applied both to functional and organic nervous disease and his further publications along similar lines will be looked forward to with interest.

SINCLAIR,
Howard, R. I.

THE PROBLEM OF MENTAL DISORDER. Edited by *M. Bentley and E. V. Cowdry*. (New York: McGraw-Hill Book Company, Inc., 1934.)

Generally a volume that aims to give us a survey of attitudes and disciplines in a certain field of endeavor (in this instance, in psychiatry) commands our attention. The present book aspires to do just that and to a certain extent it achieves its purposes. The editors have brought together the special interests of a large number of prominent investigators. They selected authorities with widely different approaches to the problems of psychiatry, in an effort to find out, if possible, how the situation in this field might be summarized today. The editors themselves write the first and the last sections and, in so doing, it appears that they have made a fair summary of the views presented by the large array of authors. The difficulty, as the reviewer sees the book as a whole, seems to lie in the fact that most of the authors assumed a purely academic interest in their topics, that is, they did not write from the standpoint of clinicians; they failed to see the sick patient or the sick environment. It is not a book for the practicing physician or psychiatrist, who

is faced with the task of doing something for the sick person before him. The book appears to meet the partial needs of the researcher, for it places greater stress upon the unsolved problems than upon the solved problems in psychiatry. The book tells very little of what has been accomplished in the practice of this branch of medicine.

The book is divided into four sections, namely, (1) The character of the problem; (2) Current points of view: a review and a comparison; (3) The supporting sciences: present contributions and future research; (4) Comments and reflections. There are 27 authors and approximately as many topics. Only a general idea of the breadth of the volume may be given here. Campbell discusses clinical psychiatry; Meyerson discusses medical psychiatry; Wechsler presents the neurologist's point of view; Meyer, the psychobiological; Kubie, the psychoanalytic. In Section III are essays on "the supporting sciences," including, among others, the following authors: Cobb (cerebral anatomy and physiology); Bishop (electrophysiology of the brain); Jacobson (electrical measurement of activities in nerve and muscle); Cowdry (neurocytology); Page (chemistry and metabolism of the brain); Penfield (neuropathology of the brain). The list is imposing. The editors are to be congratulated for gathering the viewpoints of so many important contributors into a single volume. The individual contributions as a rule are concise and relevant; they serve to give the reader an understanding of the meaning (insofar as it may be determined) of the special points of view to psychiatry. Taken as a whole, the book is one that may most profitably be read by psychiatrically trained physicians, that is, by those who are able to weigh the merits and demerits of the attitudes presented. It is certainly not a book for the newcomer in psychiatry, for it implies, first of all, a capacity for sound, critical judgments.

The editors of this volume, Madison Bentley and E. V. Cowdry, the former, Sage Professor of Psychology, Cornell University, and the latter, Professor of Cytology, Washington University, hold the opinion that "our knowledge (they were speaking for themselves) of mental disorders is extremely imperfect and that the treatment of the disordered is correspondingly unsatisfactory." They also state that "adequate understanding of the disorders and adequate therapy are both wanting." It is doubtful if even the most conservative psychiatrist would express himself in such superlative pessimism. With all due regard for the many unsolved problems in the field of psychiatry, it must, nevertheless, be granted that within the past several decades rapid and important achievements have been gained. One need only survey the field from the standpoints of descriptive psychiatry, of therapeutic psychiatry, of educational and administrative advances to appreciate the fact that there is much about which psychiatrists may feel a certain professional pride, without losing sight of the fact that the bulk of their activities is still ahead of them. The reviewer believes that the editors might wish in their next edition to express the facts regarding the current status of psychiatry; perhaps that might best be done by some one who has been in the field of psychiatry. This adverse comment, however, should not be taken too seriously by medical men, for the method by which the editors sought to gain knowledge

of psychiatric problems is commendable. They invited a number of authors (many of whom are also authorities) to participate in the general survey and the result as a whole is an agreeable and helpful orientation, as regards the work that is still to be done.

L. E. HINSIE.

A MIND THAT FOUND ITSELF. AN AUTOBIOGRAPHY. By *Clifford W. Beers.* Twenty-fifth Anniversary Edition. (New York: Doubleday, Doran and Co., Inc., 1935.)

The mind of Clifford Beers having found itself did the unique thing—it spoke, not for itself for that was not now necessary, but for all those minds visited, or which should in time to come be visited with like suffering.

His message, which proved to be a message to the world, was contained in his autobiography which appeared in March, 1908. Two months later there was founded in his home town, New Haven, the Connecticut Society for Mental Hygiene. "From this tiny seed, said Dr. C.-E. A. Winslow, speaking at the 25th anniversary meeting, "has grown one of the most notable social achievements of the modern world."

Such was the zeal with which Mr. Beers pursued his goal that within a year of the founding of the Connecticut Society conditions were ripe for national organization. The National Committee for Mental Hygiene with headquarters in New York City came into being in 1909. The movement was so timely and so necessary that, once launched, it is doubtful if any adverse circumstances could have stopped its progress. But the founder did not leave the young organization to thrive as best it might. He was not a passive watcher but a constant and tireless promotor of the cause to which he had now dedicated his life. His next objective was international; and but for the war and war's aftermath this great step would not have been delayed, as it had to be, until 1930. In that year, on the occasion of the First International Congress on Mental Hygiene held in Washington, D. C., there was founded the International Committee for Mental Hygiene, the plans for which Mr. Beers had outlined more than 10 years previously.

Mental hygiene has spread over the world almost like a religion. Indeed a few years ago a certain publicist generated not a little smoke by suggesting that mental hygiene might very properly and to the advantage of mankind take over the general functions of religion. Possibly a pleasantry such as this should not be included in a serious review; but after all there is something in mental hygiene as a way of wholesome living which makes the implications, at least, of the suggestion of the irreverent publicist, not wholly irrelevant. It may even safely be said that while a considerable number of people conduct their lives apparently quite satisfactorily without consciously practicing any religion, those who habitually disregard the fundamental tenets of mental hygiene, which might equally well be classified among the so-called laws of nature, are headed for future punishment, not in the next world but in this.

But mental hygiene as conceived by Clifford Beers is not a theory or body of doctrine merely, but a living agency and a powerful social force for human

betterment. The book which launched this movement, "A Mind That Found Itself," has enjoyed a continuous and growing prestige and has come to occupy a place entirely its own among the great autobiographies of the world. This twenty-fifth anniversary edition is the twenty-second printing—almost as many editions as the years it celebrates. That is something of a record in itself.

At the end of the epic experience so vividly set forth in the original text, Mr. Beers' real work was just beginning, a work which has led to the establishment of mental hygiene societies in some 30 states; national societies in more than 30 countries representing all the continents; and finally the International Committee and the American Foundation for Mental Hygiene. The present volume contains this story also—the "Romance of the Work" Mr. Beers calls it. It is told partly in the author's own narrative, partly in letters from the leaders in science and philanthropy whose counsel and support he sought and obtained in what Charles W. Eliot termed his "difficult enterprise." Here we may read also the address of Dr. Winslow, "The Mental Hygiene Movement and its Founder," which he delivered at the 25th anniversary meeting of the original Connecticut Society, May 6, 1933.

There are included detailed statements of the organization and objectives of the various mental hygiene bodies already referred to, with directories of state and national societies; a brief report of the First International Congress on Mental Hygiene at Washington in 1930; significant biographical data concerning the founder and historical data concerning the movement as presented at the anniversary meeting in New Haven and from other sources; a summary of the outstanding results of the 25 years' work of the National Committee; and finally, as a very fitting final chapter, there is reprinted the delightfully intimate and entertaining extemporaneous address of Mr. Beers at the 25th anniversary dinner of the National Committee in New York in 1934.

It was a rare story, "A Mind That Found Itself," which became the official text-book of the Mental Hygiene Movement; and it is a rich history, these 25 years of achievement of which that book was the inspiration.

C. B. F.

TWENTY-FIVE YEARS AFTER. SIDELIGHTS ON THE MENTAL HYGIENE MOVEMENT AND ITS FOUNDER. Edited by *Wilbur L. Cross, LL.D.* (New York: Doubleday, Doran and Co., Inc., 1934.)

This is a book *sui generis*. It is a *Festschrift*, but not of the usual kind which is merely an assemblage of scientific contributions in a volume published to honor a great leader.

Early in 1933 Dr. William H. Welch, a sponsor of the Mental Hygiene Movement from its inception, the Honorary President of the National Committee and of the American Foundation for Mental Hygiene, accepted the chairmanship of the Tribute Committee the purpose of which, in Dr. Welch's words, was to pay homage to Clifford Beers, "not only as founder, but as author, of 'A Mind That Found Itself,' the publication of which in 1908

opened the way for one of the most important movements of the day, now world-wide in extent." In a letter addressed to friends and exponents of the cause Dr. Welch invited "opinions on the importance of the movement he started and the value of his unique services to humanity."

The response was instant and ample. Letters came from all parts of the world from persons in public and private life, leaders in social progress, in science and letters. Several hundred of these letters have been collected in the present volume. In his introduction, written shortly before his death, Dr. Welch says:

"Few receive during their lifetime such a remarkable collection of tributes, national and international, as it has been my privilege, as Chairman of the Tribute Committee, to transmit to Clifford Whittingham Beers, author of 'A Mind That Found Itself,' in connection with the 25th anniversary of his founding of the Mental Hygiene Movement. Because of their historical value in relation to one of the great movements of all time, they deserve to be published, virtually in full, as a cross section of contemporaneous opinion of his signal achievement, of the importance of his classic autobiography and of the need for and value of organized efforts to conserve and promote mental health among all peoples."

Dr. Wilbur L. Cross, Governor of the state of Connecticut, and who in his former capacity as professor of English literature in Yale University numbered Mr. Beers among the students of his first class, assumed the editorship of the anniversary volume. It contains, in addition to the tribute letters, the addresses of Dr. Cross and Dr. Winslow at the 25th anniversary meeting in New Haven in 1933, a descriptive index of the contributors to the volume and a variety of informative material concerning mental hygiene activities at home and abroad.

The book is appropriately dedicated to the memory of Dr. Welch, "Beloved Dean of American Medicine and Steadfast Friend of the Mental Hygiene Movement."

In no other way could the field today of the work to which Clifford Beers set his hand a quarter of a century ago be so well exemplified as in the living voices from the four quarters of the globe which speak together in this book.

C. B. F.

THE 1934 YEAR BOOK OF NEUROLOGY, PSYCHIATRY AND ENDOCRINOLOGY. Edited by *Hans H. Reese, M. D., Harry A. Paskind, M. D., and Elmer L. Sevringhaus, M. D.* (Chicago: The Year Book Publishers, 1935.)

Dr. Peter Bassoe who since 1918 has edited the Year Book—during the past three years with Dr. Franklin G. Ebaugh associated as editor of the section on psychiatry—has retired from the direction of this invaluable review, and three new names appear on the title page.

The present volume appears in materially enlarged form occasioned by the addition of a new section on endocrinology. This part was previously included

under neurology, but has now been expanded to a separate department which in the 1934 issue actually bulks considerably larger than the section on psychiatry.

The division of neurology is now edited by Dr. Hans H. Reese, professor of neurology and psychiatry, University of Wisconsin Medical School; the division of psychiatry by Dr. Harry A. Paskind, assistant professor of nervous and mental diseases, Northwestern University Medical School; the division of endocrinology by Dr. Elmer C. Sevringhaus, associate professor of medicine, University of Wisconsin Medical School.

The Year Book has become a recognized institution in medical literature and as Dr. Bassoe's handiwork for so many years has enjoyed an enviable prestige. It is a matter of genuine regret that Dr. Bassoe's recent illness made it seem inadvisable for him to carry longer this part of his professional burden. He has however had a share in the re-planning of the Year Book and given his approval to the new programme and the new board of editors who are to be congratulated upon this first volume appearing under their sponsorship.

While the Year Book has been gradually expanding to keep pace with the growth of the literature—248 pages in 1918; 471 pages in 1933—the addition of endocrinology in 1934 causes an abrupt leap to 782 pages. In his introduction to the latter section the editor points to the expediency of limiting the reviews almost wholly to clinical papers. To compensate the omission of the non-clinical contributions he has prepared a condensed summary of systematic endocrinology indicating prevailing ideas of the interrelationships of the various glands and groups. This 13-page outline is to be read as an introduction to the detailed clinical studies which make up the section.

A single subject and author index for all sections at the end of the volume facilitates reference.

C. B. F.

In Memoriam.

SANTE DE SANCTIS.

1862–1935.

At the ripe age of 73, Professor Sante de Sanctis died February 20, 1935. But five years ago he succeeded Professor Mingazzini in the chair of neurology and psychiatry at Rome, having occupied the chair of psychiatry made vacant by the death of Augusto Tamburini some 10 years previously (1919).

Dr. De Sanctis was born in 1862, made his school and university studies and finally took his degree in Rome in 1886 with a thesis on aphasia. He began his work in the anatomical laboratory founded by Mingazzini in the mental hospital of S. Maria della Pieta and served as clinical assistant in psychiatry during the incumbencies of Solivetti, Bonfigli, and Sciamanna, becoming docent in 1896. In 1897 he went to Padua as lecturer in psychiatry and clinical director of the Nocera Inferiore Mental Hospital, assiduously working in the meantime in Marchiafava's laboratory. In 1902 he was appointed as docent in experimental psychology in Rome and in 1913 a professional chair was inaugurated. De Sanctis was the first to take up this work but he continued to labor in all of the fields in which he had so vigorously labored. His studies have thus ranged from neuroanatomy to clinical neurology, clinical psychiatry, to experimental psychology and in later years he threw himself vigorously into the fields of mental hygiene, of the feebleminded and handicapped child, into psychoanalytic psychology and theoretical psychiatry. His work on "Dreams" appeared in 1905. Notwithstanding the wide field of his labors he maintained a central focalization of interests. They followed a psychological trend and through his efforts experimental and applied psychology in Italy grew to achieve prominence and credit in the Italian universities and in the civil and legal activities of his country.

With his succession in 1919 to the psychiatric clinic of Tamburini, clinical psychiatry and applied psychology were combined.

There had resulted in 1920 a sort of psychological, psychiatric and neurological fusion in Rome. His two volume work on Experimental Psychology was appearing just at this time. As stated, in 1930 after Mingazzini's death, De Sanctis took over the control of the united "Clinica Neuropsychiatrica."

Combined with his great versatility there was a corresponding profundity and thoroughness in all his work. He threw himself into the mental hygiene movement with great enthusiasm as his work throughout his life had always maintained the value and significance of preventive medicine. This is seen in his efforts to aid the working man, the miners especially, in promoting legal safeguards surrounding labor conditions, and in his long years of study of retarded, handicapped and psychotic children in whose interest he not only wrote extensively but was active in instituting special schools—the first of which (Asili Scuoli) was opened in 1899.

With Ottolenghi he collaborated on an important Forensic Psychiatry and for many years he was assiduous in bringing about better medico-legal concepts and practices among the judiciary, the reforming of the Penal Code and the fusion of anthropological, psychiatric and criminology conceptions into better working formulations.

He was able to accomplish so much (some 250-300 titles) not only by reason of his high intelligence, his great and untiring industry and his originality, but his humanism was profound and understanding. He was always persona grata, stimulating and satisfying.

S. E. J.

CLARENCE PIERSON.

1868–1934.

By the death of Doctor Clarence Pierson, which occurred December 17, 1934, Louisiana and the whole South suffered an irreparable loss. After an illness of several months, he died at the age of 66.

Clarence Pierson was born in Natchitoches, Louisiana. Following graduation from Louisiana State University in 1889, he was employed for several seasons as a sugar chemist. In 1894 he received his Doctor of Medicine degree from Tulane University and

after a few years of private practice was appointed, in 1905, superintendent of the Central Louisiana State Hospital (State Hospital for Mental Diseases). Six months later he was placed in charge of the East Louisiana State Hospital, where he remained as superintendent for fifteen and a half years. He resigned from that position in 1920 to enter again into private practice in the city of Alexandria. He was once more called by the state of Louisiana to be superintendent of the Central Louisiana State Hospital at Pineville, which office he filled in a most creditable manner for approximately 12 years, resigning on account of failing health in November 1934.

Clarence Pierson was indeed a distinguished citizen of Louisiana. He was possessed of a genial and kindly disposition, and he had a smile and a cheering word for all with whom he came in contact. Although gentle in demeanor, he was a man of great courage and strong convictions. His judgment of men and affairs was seldom excelled.

He was an active member in many medical societies. He served as president of the Louisiana State Medical Society in 1916 and 1917. Of the many medical and fraternal organizations with which he was connected, Dr. Pierson valued most highly his association with The American Psychiatric Association. He became a fellow in 1905, and served three years on the Council of the Association. At the Toronto meeting in 1931, he was elected auditor, and served in that office until May 1934. He always attended meetings of The American Psychiatric Association, and encouraged members of his staff to do likewise.

When the history of psychiatry in Louisiana is written, much credit will be given Dr. Pierson for his influence in bettering the plight of those mentally ill. He was always an advocate for removing restraint, and for the employment of occupational therapy. He was instrumental in creating forward looking legislation.

Dr. Pierson is survived by his wife, née Martha Louise Hunter, and four children, of Alexandria, Louisiana. He was a kind and devoted husband and father.

C. S. Holbrook.

WALTHER SPIELMEYER.

1879-1935.

Professor Walther Spielmeyer, director of the neuropathological department of the Deutsche Forschungsanstalt für Psychiatrie, Kaiser-Wilhelm Institute, in Munich Germany, died on February 6, 1935, following a brief illness of influenzal-pneumonia. In his untimely passing, at the age of 55, the psychiatric world has lost a brilliant mind; his many pupils and associates, a great teacher and warm friend.

Professor Spielmeyer was born in Dessau, Germany, April 23, 1879. During his student days in Halle, under Hitzig and Heilbronner, he displayed an early interest in neuropathology. After graduating in 1902, he spent 10 months in the pathological institute in Halle, with Eberth, and then entered psychiatry under Hoche in Freiburg, where he remained until 1912. In spite of arduous clinical duties, he continued his laboratory studies and in 1906 published a description of the anatomical characteristics of the juvenile form of familial amaurotic idiocy. During his Freiburg days, also, appeared the first edition of his "Technik der mikroscopischen Untersuchung des Nervensystems." In 1912, at Kraepelin's request, he went to the Munic clinic as successor to Alzheimer, who had removed to Breslau, and became director of the anatomical laboratory. During the war, while in charge of the neurological division of the Munich Military Hospital, he published important articles pertaining to the regeneration of peripheral nerves. In 1917 when Nissl was invited to Munich as director of the brain histological research department of the new *Forschungsanstalt* Spielmeyer was offered the post thus vacated in Heidelberg. He declined however as he preferred the association with Nissl in Munich—an association he was privileged to enjoy less than a year. This period with Nissl, Spielmeyer referred to as "die schönste Zeit meines Lebens." Within three years three great men were lost to science. Alzheimer died in 1916, Brodmann followed in 1918, and finally Nissl in 1919. Professor Spielmeyer was thus left alone to bear the responsibility of leading the newly founded German school of histopathology of the nervous system; the constant stream of students from all over the world to his laboratory was an indication of how brilliantly he succeeded. In 1922, his authoritative work,

"Histopathologie des Nervensystems," was published. With Kraepelin's death in 1927, Professor Spielmeyer inherited an additional burden, the responsibility of completing the organization of the new Deutsche Forschungsanstalt für Psychiatrie. This he willingly undertook; in 1928 the building was officially opened and he directed it's activities until 1931.

His numerous contributions to the literature were extremely valuable. During recent years his investigations were chiefly concerned with the influence of somatic diseases on the nervous system. He was particularly interested in circulatory diseases of the brain. To him belongs the honor of establishing the relationship between vascular spasm and ischemic cell changes with the resulting morphological alterations and the rôle of vascular spasm in epileptic convulsions. Of special significance were his studies on infections of the nervous system and on encephalitis in particular. "Die Anatomie der Psychosen," the eleventh volume of Bumke's "Handbuch der Geisteskrankheiten," was edited by him and up to the time of his death he was engaged in editing a three volume work, "Pathologische Anatomie des Nervensystems," for the Henke-Lubarsch "Handbuch der speziellen Anatomie." Since 1916, he was one of the co-editors of the "Zeitschrift für die gesamte Neurologie und Psychiatrie" and since 1921, editor of the "Zentralblatt für die gesamte Neurologie und Psychiatrie."

He was the recipient of many honors, both from his own and other countries. From Spain he received the Achucarro prize and two years ago the German neuropsychiatric society presented him with the Erb medal. He was frequently invited to lecture abroad and in this capacity visited the United States, England, Brazil, Holland and Sweden. As a sign of special recognition, the Rockefeller Foundation had for years placed liberal funds at his disposal, for the prosecution of research in his laboratory.

Professor Spielmeyer had great personal charm, he was kindly, extremely amiable, and possessed a keen sense of humor. He took a personal interest in those working in his laboratory, volunteering his aid in furthering their profession and personal interests and desires. A fault, perhaps, was that he gave of himself too freely. His frequent visits to the workroom, when in the most informal manner, he would pass from man to man, chatting, advising and encouraging, were always pleasantly anticipated. A spirit of scien-

tific good-fellowship pervaded his laboratory, governing the relationship between teacher and pupil and also between the pupils themselves. Entirely foreign to his nature was any trace of self-emulation or dogmatism. Although holding firm convictions on the basis of his own thorough investigations he constantly sought and respected the opinions of others. Views differing from his own, when valid, were willingly acknowledged but he forever remained opposed to pseudo-scientific speculations.

The world is indeed left poorer by his death but is enriched by his memory and stimulated by his achievements and example.

A. J. KILGOUR,
H. W. WILLIAMS.

THE DRAMA OF A GREAT MEDICAL LIBRARY.*

By MAJOR EDGAR ERSKINE HUME,
Librarian, Surgeon General's Library.

I wonder how many of you would reply, as I hope you would if you were asked the question, "What is America's greatest contribution to medicine?" A rather large question! It requires a rather large answer.

I will tell you the answer made by one of the greatest medical men we had in this country up to a short time ago, Dr. William H. Welch. He was a great friend of our library. The last time he was there, he was sitting smoking and talking in a sort of philosophical fashion that so many of you have seen him use. He said he had been asked this question and he had thought it over and decided that there were four great contributions that our country had made to medical science. He mentioned first the discovery of anesthesia; second, the discovery of the insect transmission of disease; then he spoke of the development of the Public Health Laboratory and all that that implies; and, fourth, he cited the Army Medical Library and its Index Catalog. And he added that the greatest of the four is the last, the Army Medical Library and its Index Catalog.

Those are words from a man who meant what he said and who did not speak lightly.

Now we are often asked in the army just what it is that the army has to do with the greatest medical library in the world, why is it that the army has control of it. It is not supposed to be a military duty to run a library.

I shall attempt to tell you just why that is. Just one hundred years ago, there began to be collected in the office of the director of the medical department of our army, whom we call the surgeon general, a small collection of books for reference purposes. A catalog of that collection was written first in 1840, not printed,

* Address by the guest speaker at the annual dinner of The American Psychiatric Association, Mayflower Hotel, Washington, D. C., May 15, 1935. Stenographic report. The speaker spoke extemporaneously.

but written with a pen. It included 138 titles, 228 volumes. That was the beginning of our library that now numbers more than 1,000,000 items.

In 1865, the library had grown very slowly and by that time had about 1000 volumes, just about as many as you have in two or three good sized book cases in your office.

Then was assigned to this work a man of genius, one of the great medical men of our country, John Shaw Billings, a Titan, if ever there were a Titan in our profession. Here is his statement of conditions in this country with regard to medical publications. Billings said:

> That there is a need in this country of a medical library of this character is sufficiently evident from the fact that in all of the public medical libraries of the United States put together, it would not be possible to verify from the original authorities the references given by standard English, German or other authors. No complete collection of American medical literature is in existence. The most complete in this country is in private hands and not accessible to the public; while every year adds to the difficulty of forming such a collection as the Government should possess.

Billings had vision and he persuaded the then surgeon general to allot him a fund of $80,000, something that we might call a "slush fund" in army slang. It was left over from the Civil War from a hospital fund and nobody knew quite what to do with it. They gave it to Billings and gave him a rather free hand, telling him to go ahead and develop this great medical library he thought our country needed, and he worked well. The library grew and grew and grew.

In 1865, he had printed the first catalog of the library, and those of you who are familiar with that great series of books that we now call the catalog may be interested in seeing this little pamphlet. That was the first catalog of the surgeon general's library complete; this little pamphlet that I hold in my hand listed every book we had in 1865.

Billings was given a free hand, as I said, and he went to Europe and he learned how to purchase books carefully, he learned how to select them. He had a great corps of assistants (and by assistants, I mean advisors) throughout the country. The late Sir William Osler was one of them, and many, many others of similar type.

The library grew along and in 1871 it had gone up to 13,000 volumes, still small, but large compared to what it had been.

The first building that housed the institution was the old Ford's Theater. Some of you know it is not very far from here, the building in which President Lincoln was killed. In that building were kept the books. They were cataloged and indexed in a small way, as much as could be done with the brief time Dr. Billings had and the small staff. But he worked hard and he was in constant communication with medical authorities all over the world in every country. He finally printed what he called the Specimen Fasciculus. I have it here merely to show you the size. In this he developed his system of classification and sent it all over the world. Every great university, every great medical man, all of the libraries, received copies and he eagerly asked advice and asked them to confirm or refute the statements he made about the need of the library and the need of this great catalog.

That Specimen Fasciculus made history. It was one of the great steps in medical science. Billings said of it these words—this is after it had gone around and had been well received:

> I cannot doubt that if a sufficient number of the catalog, of which this is a specimen, be printed and distributed to our medical writers and teachers so that they may at their leisure learn what aid they can obtain in their researches, no collection of the Government will be more used or be of more practical utility; that it will soon tend to elevate the standard of medical education, literature and scholarship of the nation, and will thus indirectly be for the benefit of the whole country, since the general knowledge and skill of the medical profession become a matter of personal interest to almost every individual at some time during the course of his life.

When the Specimen Fasciculus had been circulated and all the new ideas had come in, then and only then did Billings begin to print the great Index Catalog. This is the great monument which Dr. Welch said is America's greatest contribution to medicine.

All of you may know the catalog. You know there are many ways in which to subdivide our profession, but we divide the physicians into two classes; first, those who know the library well, and, secondly, those who do not know the library at all. In the picture, there are no halftones; it is all highlights and shadows. You either know us well or you do not know us at all. I hope some of those here tonight who do not know us at all will be interested

a little bit from what I have to say and come and get to know us. We are a willing servant, I assure you.

Here is what Oliver Wendell Holmes said of this Catalog when he first saw it. This was when Billings had finished his $80,000 and began to need more money and there were no funds on which he could draw and he had appealed to Congress for appropriations. The great Oliver Wendell Holmes said:

> When we have a noble library like that in Washington, I believe that a liberal appropriation by Congress to carry out a conscientious work for the advancement of sound knowledge and the bettering of human conditions, like that which Dr. Billings has so well begun, would redound greatly to the honor of the nation.

And those words helped greatly because Oliver Wendell Holmes was well known and popular. Money was forthcoming and the Catalog began.

Now the Catalog—I am speaking to what I hope is the minority, those who do not know us at all—is a great work in which you find in one alphabet both subjects and authors, and it is divided in a very systematic fashion. We first have the large subdivisions, then smaller and smaller and smaller, according to the amount of material we have, until you find just what you are after.

Dr. Fletcher, of whom I will tell you in a moment, had a whimsical way of describing this catalog, likening it to a great hotel in a large city. He said, "There are some guests or some subjects which, because they are old and wealthy, are entitled to large suites, perhaps even whole floors in the hotel, such subjects as *Water Supplies, Surgery* and *Medicine*." Then he said, "There are others who do not do so well, they are people who have come up a little bit in the world, but they still haven't all the money they need and they must be content with hall bedrooms or perhaps little cribs up under the attic, and like such guests there are the titles *Amulets, Acupuncture* and so forth."

Then he said, "There are others that started out rather poorly but have become rather wealthy of late, and whereas formerly they would have had to do with small rooms, now they demand great suites, sometimes even with rooms for a maid or courier." Among those he listed *Arteriosclerosis, Bacteriology, Parasitology,* all the rather new ideas in Fletcher's time.

Then finally he said there are certain people that he compared to diagnostic tests and certain drugs and certain peculiar surgical procedures which he said were bounders, get-rich-quicks, that came and stayed a little while and soon exhausted their credit and used up their funds and had to be gone.

That is the Catalog today. We have to make room for all of these guests. We don't know what their future is going to be. Sometimes they start out and we think they are going to be nice guests but we find out their credit is not so good and pretty soon the next edition does not know them.

Congress made the first appropriation for the Index Catalog in 1880, and that was when the first volume of this great work began to come out. Billings published the A volume in that year; the next year, B; the next year, C; and so on. That is the system we followed in general where we have had the funds. Once in a while we have had to skip a year. When we got down to the letter Z, we began a new series with A again, a second series. We are now working on the A volume of the fourth series.

In other words, here is what you do. Suppose you wish to look up a simple subject, we will say fracture of the clavicle. Suppose you would like to know everything that you can find on such a broad subject as that; it is not hard to do. You take the first series of the Index Catalog and look under "clavicle," and follow down until you come to "fractures" and there you will find all the books that have been written on the subject of fractures of the clavicle, and there have been many books on that one subject. Next you will find the theses men have presented at various universities throughout the world, and finally you come to the articles in journals in all languages, all in one alphabet.

When you have finished everything you find in the first series, you take the second series the same way and then the third series, and soon we hope to give you the fourth series, and if you want to go beyond that, every day when we close up the library we have brought up to date, we think, the material that has come in up to that time; so in that way you will have everything as far as is known on the subject of fractures of the clavicle.

This work of ours, this Index Catalog, is not merely a work for our one building, it is not merely a work for this country. No matter where you go throughout the world to search for medical lit-

erature, whether it be Tokyo or Buenos Aires or London or Rome or Stockholm or anywhere else, you will use our catalog, because, obviously, there is no reason to duplicate such a great work, and we can say that it is the greatest bibliographical piece of work ever undertaken, not merely in medicine but in any branch of knowledge. I don't say that of my own thoughts but that is the opinion that we have from those who are entitled to be believed.

Billings saw that this Index Catalog would take a long time to finish one alphabet. Obviously, if you print one letter a year, it takes 26 years to run through the alphabet. He and his able assistant, Dr. Robert Fletcher, who joined him early in the game, devised another publication that was known as the Index Medicus. The Index Medicus was a publication that came out once a month. He attempted in each month to give the publications that had appeared the month before. He also at first had a series of questions and answers as a sort of " hearth and home " column in the book. That was soon dropped because it took up too much space.

At the end of a year, with the Index Medicus you can find out largely what has appeared in that calendar year. So between these two working tools, you have a very easy method of ascertaining just what you want on any particular subject.

The Index Medicus was never a government publication. It was always very expensive. It was published first by one publisher and then by another publisher and then by a third publisher but finally it had to be stopped because they had so few subscribers it could not be financed. For three years it wasn't published in this country but in France, and the French had the same experience. It was so expensive they had to give it up. Finally, the Carnegie Institution came forward in 1903 and undertook to publish the work and they continued the publication down to recently when our Index Medicus was united with the Quarterly Cumulative Index of the American Medical Association, and since 1927, the two have been combined and most of you are familiar with that work. But do not think that it in any way replaces the Index Catalog; neither replaces the other, both are necessary.

The Index Catalog indexes an extraordinarily large number of medical journals. We have 2500 medical periodicals and we index every article in every issue in every journal in every language, that is, those that are considered worth while. We don't attempt

to index certain fly-by-night articles that are obviously worthless. Imagine what that means! It is quite a large undertaking for the small staff we have available.

When this work was first projected, no less a person than Helmholtz—by the way, Helmholtz was a descendant of William Penn; we feel we have sort of a claim on Helmholtz here—said, "Medical bibliography hardly deserves the name of science, since neither enable us to see the complete connection or predict the results under new conditions yet untried."

I could tell you much of the early days of the library, perhaps more than you would have time to hear. The classification adopted was not quite that which is now popular in some places, based on a system of decimals. Billings did not follow that, because he said, and I quote Garrison, one of his best pupils: "As modern medical science was even then beginning to advance by leaps and bounds, its surface aspects constantly changing as it advanced, Billings saw it would be impossible to adopt any arbitrary and fixed classification based on a definite scheme of nosology, since any scheme would be like the average medical textbook of today—obsolete in a few years." The system developed and used in our Index Catalog is used in certain libraries, nevertheless, certain general libraries, as for example the Peabody Library in Baltimore.

After the catalog had been running a few years and it began to be well received throughout the world, Dr. Billings said of it: "If the entire medical literature of the world, with the exception of that which is collected in the United States, were now to be destroyed, nearly all that is valuable could be replaced without difficulty."

Those are weighty words, because we here, a new country, had, in his mind, the greatest medical bibliography of all time; in his opinion we had developed a library sufficiently important and large to assure the profession of these important works, even though everything in the old world were to be taken from us.

Billings was working hard to have a new building. That perhaps is the only thing I have in common with Billings. He realized that his building was too small in the old quarters of the Ford Theater and he prevailed on his friends, and they prevailed on other friends to induce Congress to appropriate the great amount of money that it seemed was needed to build the new building.

The Ninth International Congress of Medicine was to meet in Washington in 1887 and Billings had set his heart on being able to entertain them in the new building. He planned the building himself and he was no mean planner, when you realize he planned the Johns Hopkins Hospital and the New York Public Library and several other institutions that flourish still.

He was successful. The building was completed by 1888 and he had a great reception there for all his friends and men came from all over the world for that occasion. Baron von Esmarch was Billings' house guest at that time and through his wife, who was a member of the royal family of Prussia, he interested the German Emperor in the work of our library.

In 1895, Billings retired from the army and went to New York and became librarian of the New York Public Library. Let me digress for a moment to give you some of the things that this great man did in his career. He not only established and conducted this library, founded the Index Medicus, the Index Catalog, but had much to do with the reorganization of the old Marine Hospital Service, helping to make it the splendid U. S. Public Health Service we have today. He designed largely the Johns Hopkins Hospital, the New York Public Library, and finally ended his long career of usefulness as professor of hygiene at the University of Pennsylvania—a most protean character.

Dr. Fletcher remained with the library until his death in 1912, when he was a very old man, and right up to the end he continued his work. I remember as a student of medicine in Baltimore being brought over here by some of the instructors and taken to the library. I never thought then that I would have anything to do with its conduct in the future. But we were shown just how to use the library, just how to make use of these working tools of which I have told you. That is a custom that, I am sorry to say, has fallen into disuse in some of the medical schools outside of Washington, although the ones in Washington, including the Naval Medical School and Army Medical School, do bring their students once a year and we attempt to show them how to make use of this library, because the library is no longer merely a library where you can go and look up things as it was in Billings' day.

After the World War, we had authority to do what we had long wanted to do, and that was to lend books in an inter-library loan

system to other libraries. And now practically everything that we have is available to every physician in this country and Canada and Mexico, and under certain conditions even to other countries. You merely have to write in and make your wants known. We ask only that you write through some other library because we haven't the facilities to look up every individual physician. But if you have your library of your medical school or your county medical society or the hospital with which you are associated or any other institution of that kind write in, the library, as I have said before, is a willing servant and will happily serve you.

Now a moment ago I said perhaps some of you have wondered why the army should control and run the largest medical library in the world, the national medical library. You see it is because the army developed it. Under our form of government, it isn't always easy to tell just what the developments are going to be when they begin. For example, why should our U. S. Public Health Service be under the Treasury Department? You have to know the history of it to understand that. Why is the Library of Congress the National Library, why say it is the Library of *Congress,* if it belongs to the country? Why do the Army Engineers have control of the rivers and harbors of the United States? All of these things go back to the things they developed then and they still control.

Then there is such a thing as departmental initiative just as there is individual initiative and to take away from any department or bureau something that it has developed is a very brutal thing (I am quoting Dr. Welch again), and you destroy that initiative, you make a department feel there is no reason for it to develop something if it is to lose it. And so it goes. All of these institutions that I mention are being controlled by the departments or bureaus that developed them. Our library is a part of what might be termed the National Library of the United States. In the words of the Librarian of Congress, that library consists of the Library of Congress, the Library of the Bureau of Education, the Library of the Navy Department, the Library of the Department of Agriculture, the Army Medical Library and certain other libraries that all together make up the great National Library of America.

Now all libraries ultimately outgrow their homes. Obviously, if you receive, as we do, practically everything published in every

country, sooner or later, no matter how big your building is, you outgrow it. That is just what has happened to us now. Our building is so full that the engineers will not allow us to put any more books in the stacks. If we do put more books in the stacks, we have to take out some each time. The result is our garret and our cellar and the hallways and every other space we have are crowded and the building, of course, is not fireproof in the sense we like to think of fireproof buildings now. It was considered so in 1880 and it is well built, but we hate to think what would happen if we had a disastrous fire there. As long ago as 14 years Congress appropriated funds for the purchase of a site for the library as a part of our Army Medical Center. That is the center of which Walter Reed Hospital is one part. The Army Medical School and the Army Dental School and the Army Veterinary School and so on, are the other parts. That is where the library, of course, should go. We are hoping now we will get the funds in one way or another to enable us to develop that site and put up the new building that we so badly need.

Of course, some people will say, "Why take this library way out in the country?" Some have said as much to me today. It *isn't* way out in the country. After all, the District of Columbia only covers ten square miles. No place is very far away. The Walter Reed Hospital is not far at all. They have suitable parking spaces out there and we would have it open at night and various other things we are unable to do now. So that we hope the medical profession of the country will want its library—not our library for it is yours—housed in a suitable place where the books can be readily available, where it will have room for expansion, room for plenty of readers, and all the other things the library should have.

Let me tell you just a few things about some of the treasures of our library. I mentioned the modern things first. Remember I said we take some 2500 medical serials and we index every article in every issue of every journal in every language. We receive practically every book published in medicine throughout the world. When a book is copyrighted in the country, those of you who have written books know you must give two copies to the copyright office; if it happens to be on a medical subject, one of those books finds its way to our library. Of the foreign books that is not so, we have to purchase them and we haven't had quite as

much money as we needed of late years but we hope that will be corrected.

Now for some of the old things. Books published before the year 1500 are known as *incunabula,* from the Latin word meaning cradle, in other words, when printing was in its infancy. There are about 600 medical incunabula known. We have in our library 450. That is a pretty good average out of the 600. Of course, the remaining hundred books come on the market once in a while, but they are extremely high-priced and extremely hard to get.

We have developed in the last few years a system of exchanging photostats of some of our treasures with other libraries for other photostats of some of their treasures. Obviously, a photostat is almost as good as the real thing; it is just as legible. It may not be as valuable from a collector's standpoint, but it does the work in the library.

We are told that the only complete file of theses, medical theses, of the University of Paris, is in our own library, even in the Sorbonne, the University of Paris, they haven't a complete file of medical theses.

We have medical manuscripts, a great many of them that go back to the very earliest days, long before printing was invented. These are the treasures that we want protected in a suitable building. They are all available. Those books, of course, do not leave the library, neither does unbound material. Anything else we have is yours. We like you to think of it as your library, as I said before.

Now a librarian is like a hod carrier. I remember when I was first assigned to the Army Medical Library in 1932, I was unfortunate for the moment in having a broken arm. Some of my friends said, "You mustn't go to the library, the books are awfully heavy; you will hurt your arm and it won't get well." Some people visualize the work of the librarian as a man who takes a little rubber stamp and stamps in the book, August 13, and says, "This will cost you two cents a day for every day you keep it longer than that date." I thought, when someone said that to me, of an expression of General McCaw, one of the former librarians. He said, "A librarian is like a hod carrier; it is his business to take bricks that one set of men makes and transport them over to another set of men who can build with them. He has very little to do with the

finished building, but, nevertheless, he takes pride in it, and so does the librarian."

So, gentlemen, that, in a word, is something of what we do in the library. I don't know that it is very dramatic or very romantic, but it is a thing that goes on day in and day out and is very little known here in Washington among people outside our own profession. As I said, there are certain ones in our profession who do not use it so well, but the library is at your disposal. I hope as many of you as can, especially those who haven't been before, will have time to pay us a little visit. We are not far away. We have placed a few books of psychiatric interest out there, some of the milestones of this specialty; but those and anything else we have are at your disposal and I hope you will come to see us.

THE MATERIAL OF HUMAN NATURE AND CONDUCT.

A SYMPOSIUM.*

INTRODUCTION.

BY ADOLF MEYER, M. D.

In any human pursuit and interest or science, the most natural first and fundamental question is that of the character and nature of the material with which one works. In the case of the study of man and his nature and functioning, and especially the study of what we call man's mind, the first concern is most frequently said to be the need of a "special approach" and of a "special aspect." This comes from a long and deeply rooted tradition of a division of labor referring a special domain of human nature, that of the mental and spiritual relations and functions, to one group of workers, and the supposedly material and physical ones to another. There was and still is a time-honored assumption that there must be a strict division between mental and physical facts and their respective sciences, with an oft repeated statement that mind actually is beyond human ken. There lingers the division of sciences into mental sciences and natural sciences. Biology and psychology still have difficulty to get rid of animistic residuals of a *special* spark of life and mind with their "mere matter," with the contrast kept alive because of the apparent impossibility of understanding the rise of consciousness out of matter and even out of living matter. Physics and chemistry figure as the only true fundamental natural sciences and up to recently psychophysical parallelism and the contrast of the inner and the outer man with all kinds of philosophical backing had to save the day. It was not until the concept of integration restated the situation that the hankering for mystical stop-gaps and reservations began to decrease. Those who preferred

* This and the following six papers, constituting a symposium, were read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

to save themselves the mental effort to think in terms of the newer concepts indulged in the claim that the barriers between the sciences had broken down, that we deal only with different approaches and aspects, but often without any clear statement as to what is meant and attained. Too many new needs and realizations have come into prominence to allow us to remain satisfied with this state of affairs. There arises the question whether the different "aspects" are not merely the investigator's human responses to actually *different sets of relationship of facts.*

Just as the development of the theory and practice of physics and chemistry teaches us a disentanglement of wide ranges of facts and freedom from untenable generalizations, and through the expansion of the objective and experimental methods and formulations all the more simple and dependable and generally consistent principles and concepts also for the study of biological integrations generally, so we look for a closer study of the data and methods as actually used in our special fields of the nature of man. Before we get too much preoccupied with "aspects" and "approaches" (*i. e.,* the investigator's nature and function rather than the facts to be investigated) we do well to turn to the "facts."

In to-day's symposium we want to give ourselves an accounting of what material we work with, in our special work and interests, when we talk of personality function, psychology, psychopathology and psychotherapy, psychoanalysis, research psychiatry, human physics and chemistry and autopsy experience, and what we may pull together from these discussions with the legitimate desire to talk less of "approaches" and to be more specific on what we find and use as *facts* in our observations and work and understandings. The afternoon is too short to go into the history back of this symposium—the philosophic-epistemological obsessions of various dualisms and the insidious mystifications about the problem of human nature as an object of science. Let us go to it and see what the solid materials are we respectively cultivate. There still are too many physicians who think there must be certain strange "approaches" in psychology and psychiatry, foreign to current medicine and also in contrast to what figures as the "real" natural science. It is my conviction that this is not really and not necessarily the case. We only have to learn *what kind of facts* we deal with and have in mind; the approaches will then come quite natur-

ally, and without confusing perplexities and disturbing obstructions in a pluralism with intrinsic consistency rather than a dogmatic dualism or monism.

It therefore is the purpose of the symposium to give expression to what workers in special fields consider their material, and what light this throws on what we finally think, speak and do in terms of what we might variously call psychology or psychobiology or personality-function or total-function or behavior and ergasiology in dealing with human beings and human nature.

It seemed to me of paramount importance that an association dealing with psychiatry might give some consideration to *what we can all agree upon as the material specific for our work.* If, in our educational programs, we want to get genuine recognition of our actually dealing with a specific field, it would seem most important to get on common ground with regard to the type of *fact* and the *objective material* we concern ourselves with. In all this, it will be more important to know *what we can agree upon* than what we might specify as our *differences.* When we know what material we imply when we think, speak and act in terms of *individual and group function,* the facts and methods and concepts will shape the approaches, instead of "approaches" prejudging and determining the *facts* or material, which evidently is of many kinds.

It was deemed best to ask for the collaboration of representative workers in specialized fields and it was highly satisfactory and encouraging to obtain the cooperation of Professor Walter R. Miles as a representative of psychology, of Dr. William Malamud as a representative of general psychopathology and psychotherapy, of Dr. Sandor Rado as a representative of psychoanalysis, Dr. Stanley Cobb for the physiological and neurological and endocrinological interests, Dr. John Whitehorn as a worker in biochemistry, and Dr. Lauretta Bender as a worker in the field also of autopsy material and organicism.

As one *also* actively interested in many of these special fields and materials, I shall, as far as I am able to do so, try to draw together what constitutes common ground, and try to specify what we share in common and what would seem to be the nature of the common material and common concepts and methods. We might then get closer to what we should describe as essential and obliga-

tory in the characterization of material for a curriculum and the relative demarcation of our concerns.

Let us remember that we should not exceed 12-15 minutes in any individual presentation and not more than five minutes on any discussion. As far as possible we want to *focus on the material and on the methods required by the material* and then discuss the way the material lends itself for a characterization of what we variously call mind, psyche and person, or the "he" and "she," and its nature and functioning, and what samples of our functioning as investigators and psychiatrists we can put forth and consider our common ground.

I wish we all could listen (or read) as it were, pencil in hand, and note the questions that arise in us with regard to the material each contributor appears to work with and to build his conception on, and his ways and means of making sure of scientific control.

We might then pool the upshot—I repeat—looking more for what we all can agree on than on what we might want to agree to disagree on, but open-minded, ready to see overt and implicit working, and all that which we need consider to do justice to the vital and essential questions of what we know, think and do about human nature.

With this understanding, I therefore take pleasure in calling on Professor Walter Miles, who will take us into his workshop and tell us with a few samples what he feels he actually meets, finds and uses. Dr. Miles is well known to us by his studies of the effect of alcohol on human functioning and on animals; human vitality and efficiency under prolonged restrictions of diet; the sex expression of men living on a lowered nutrition level; alcohol and human efficiency; pursuit coordination; sensory thresholds; motor coordinations; eye movements in reading; drug studies with the elevated maze method—a psychology which is evidently much more than introspection, namely, a study of special natural-history occurrences and their interests and ways of consideration.

THE MATERIAL AS DEALT WITH BY THE PSYCHOLOGIST.

By WALTER R. MILES, Ph. D.,
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I. General Procedure.

Personalities balanced or unbalanced depend like budgets upon the resources within and behind them. The *persona* was the mask or character assumed by the actor. The personality is the total expression, more or less well integrated, of the psycho-physical resources and potentialities of the individual.

When we face a patient we ask ourselves: "Who is this person and why is he what he is?" This question may be finally answered in terms of total personality function. But before we can answer it in synthesis we must attempt to fractionate the personality into separate functions or behavior samples: (A) those that have proved generally important and meaningful for all human beings, and (B) those that in this particular individual seem to influence total function in a special or characteristic way. Both of the series of function samples to be considered emerge as foci for psychological study from three aspects: (1) What is the background, origin or history of the individual; (2) What is his present status as to function; and (3) What are his potentialities and the total function possibility for the future?

In this scheme of human exploration the psychologist is concerned especially with the second question. But he can interpret it only in terms of the first. The third aspect, prognosis, emerges from a combined view of origins and present capacities.

The method of verbal report, of question and answer between physician and patient, has been and will continue to be the most available and practically productive method of approach between personalities. For the psychiatric patient especially this has been necessarily supplemented by widening the source of answers to others in the patient's immediate environment. Verbal report cannot be dispensed with but it can be more and more supplemented

and made meaningful by the addition of systematic observations and recorded measurements of samples of behavior under standardized laboratory or semi-laboratory conditions. In the psychological laboratory this means the setting up of series of appropriate tasks selected at different levels of psycho-physiological function from the predominantly physiological to the far limits of the psychological. Thus we need to consider body-type, energy and physique as well as motion, perception, memory, imagination, and the capacities for comparing, combining and abstracting. We need to probe affectivity and motivation, from the simple to the complex in attitudes and interests. And we cannot think of any of these so-called factors as functioning in isolation. All are so many ways of viewing personality function. They constitute convenient emphases in a systematic classification series, they do not represent exclusive existence or mental and emotional occupancy.

In the psychological laboratory a wide variety of situations may be provided in which the environment is controlled and in which individuals are called upon to make integration at the different psycho-physiological levels requisite with different degrees of complexity and with different attitude emphases. Each problem whether solved orally or with the help of other behavior mechanisms, and each laboratory set-up by means of which the patient does something, furnishes a kind of viewing device arranged so that the experimenter may see the personality in a particular context and light.

The choice of experimental materials and methods is wider than it is diagnostically decisive in the present stage of our knowledge. More psychological tasks and procedures are now available for use on patients than any patient ought or needs to have done on him. In normal human beings there is a reliable correlation existing between achievements and potentialities, in many directions. Indices from one kind of function are valid for sundry others. And with our psychiatric patients too this is true in certain realms, and these need in the psychological study to be carefully mapped so that the expensive business of mental exploring and assaying can be reduced for both patient and experimenter to a minimum.

The general plotting of personality function serves as a large outline map upon which certain sections need to be studied in great detail—sections containing explosive emotional material need cau-

tious survey, and those containing potential economic possibilities, even riches, are worthy of detailed study. The indications for points or regions to be examined minutely usually develop naturally from preliminary behavioral observations or reports or through hints given by the psychiatrist from his early view of the history of the case. The minute assay of a single small plot may be immediately useful for the diagnosis, but the total topography and the appraisal of potential production and the interrelation of basic and by-products is in personality study the final psychological objective.

II. Representative Samples.

The itemization of the personality budget or the mapping of the personality terrain might conceivably be attempted in detail and extenso, but as a rule we must be content with a critical inventory in part detailed, in part only roughly sketched. It should include a series of assays from the physical, cognitive, affective and conative fields or aspects of behavior function. In none of these is either the physiological or the psychological function complete in its occupancy and control; the balance merely shifts as one or the other is relatively prepotent.

It is absolutely impossible at this time to review the materials or methods available and in use for personality study in psychological laboratories or even in a single laboratory. Four samples of method and particularly of function content have been selected in illustration of the approach and the nature of the results in a psychological assay of personality.

A. At the predominantly somatic level the psychological element is probably never wholly absent and its function is measurable in degree as the physical variables are held constant. Complex but importantly illustrative of the psychological problem of total function, is the study of relaxation. It is a laboratory attempt to answer the question: "How does this patient rest, or try to rest?" It is an appraisal of the individual when in that transitional state between activity and sleep when the personality recoils as it were, upon itself, when normally active tension is relaxed and the conditions for quiet and repose ensue. The measurement is made graphically with the patient under post-absorbtive conditions on a large weighing balance which permits registry of the insensible weight loss.

Observation under standard conditions plus an objective kymograph charting of the rate of weight loss here provides a useful supplement to the patient's subjective report of his relaxation habits or their acute disturbance. Under favorable circumstances the subject may fall asleep during the experiment and thus give a graphic picture of the transition and contrast in his waking and sleeping relaxation. The material touched upon by this method belongs to the less psychological strata of personality function, but these regions are basically important. Here is a measurement of the rate of energy expenditure and recovery which we may call the activity-passivity ratio. Whether anything diagnostically typical for manic-depressive or schizophrenic syndromes will develop from it remains to be seen. It is perhaps a fundamental character amenable in part to external and health conditions, but basically presenting a kind of index of adaptation to or acceptance of fundamental conditions. Anxiety, tension, stress are measured here; calm dismissal of activity, relinquishment of responsibility, willingness to retire at least in the interest of repose and bodily recreation may also be indicated. Both groups are in terms of basal metabolic level, that is, psychological relaxation may be referred here to physiological energy exchange. This must serve as a brief sample of psychological function material near the somatic level. It is only one of several illustrations that might be given of attempts to assay the total personality function in this region.

B. In dealing with cognition reliable tools have been developed for the differentiation of levels of intellect in normal persons and analysis of its elements in disorganized or malorganized minds. Attention, memory, apperception, discriminative judgment can be assayed with appropriate instruments and their index relationships can be plotted in behavior when one or the other is blocked or otherwise disturbed. The cognitive materials studied may be simple or complex. Both the small elements of behavior and the organized functions are important for the total picture. Responses in terms of the tasks that make up the classical intelligence tests are familiar. A sample task for assaying a partial function in the cognitive field is my letter placement test. Letters on an unruled small field are compared to the position of numbers placed on a large ruled field. In normal persons this test alone, like numerous

other tasks, gives an index of intellect valid for classification into five intelligence categories. In disorganized intellects there often occur with this test errors of judgment in terms of direction, size or pattern that contribute directly meaningful measures or illuminate the results in other fields. Tasks involving the assembly of simple materials like blocks or parts of a garment often reveal the patient's condition of organization most strikingly.

C. For the observation of affective and conative functions indirect psychological approaches may prove fruitful. A view of the active phase of volition, desire, aversion toward any standard material presents interesting and serviceable insights into individuals. Comparison of performance in handling the same kinds of materials with and without a time limit may serve as an example. For equal intellects facility or blocking may vary greatly or in the same intellect functions may differ from time to time as the general affective tone increases or retards performance.

D. Purposive activity, the conative functions, may be viewed through devices calling for spontaneous mental behavior with cognition minimal. The kinéphantoscope which by its presentation of ambiguous shadow figures draws upon the native imagination has its place here.[1] Mental elasticity or resilience may be said to be exercised by this moving object as stimulus, which, although itself simple in form and actually executing only one simple circular motion, spontaneously suggests to normal as well as to abnormal minds a range of possible motions probably not exhausted by the 15 or more pattern interpretations already recorded in a study of some 1200 persons. The outgoing adaptive responsive mind is contrasted here with the inturned, objecting, critically negative mind and the difference appears to correlate with a system of psychiatric behavior types.

III. Comparison Fundamentals.

Value and even quality cannot stand alone. They are meaningful only or at least chiefly on backgrounds or scales of values and qualities. The interpretation of results from laboratory experiment, clinic test, or office interview as personality samples depends largely on the relationship of these to and their integration with other simple or complex personality phenomena. There is the basic matter of somatic structure and type, and the question of

whether the patient is a man or a woman. Is the patient's body tenable as a comfortable place in which to live, or, for example, has fire or war crippled or otherwise blemished it? We must not neglect to see our samples in terms of the frames, of race and culture. We may take an illustration from the somatic field in terms of sex differences. On the side of intelligence there is no definite difference to be watched for or held applicable as interpretation, but on the side of motivation and performance with certain types of material the sex differences are marked as for example in the scores of men and women varying in education and age but all examined in reference to their ability to assemble a garment.

The psychologist is uncomfortable unless he can relate each measurement to a norm. How, he asks, does the performance of this particular individual in this particular task (and in each of the others in the series that make up in this case the total psychological profile or assay) relate to the norms for representative groups of individuals of his build, size, sex, age, intellect, education, interests or experience?

No experimental or clinical psychologist would wish for a bundle of laboratory findings unaccompanied by an opportunity to see the patient and gain some idea of the physiological status represented by him in such elements as health, nutritional condition, available energy, irritability, etc. If for example we have tried in the laboratory to sample the personality element of tempo we must not neglect to interpret our sample in relation to adult-age curves such as those which come from the Stanford Later Maturity Research.[2] A man 65 years of age must be compared with his own life decade and the amount of involution that is characteristic for it, not with the 20 and 25 year olds or even the middle aged. Particularly tests of intellectual functions which figure so largely in our effort to determine deterioration in patients must be compared with adequate norms for the entire range of adult life.[3, 4] We cannot know personality materials directly as ultimates, we can get view of them only as characteristics and relations.

In attempting to map out pyschological function we are constantly faced with the need for new and wider systems of norms and I am impressed with the belief that it is these norms, these outlines of actual behavior that will ultimately furnish the concepts of function toward which we are striving.

IV. Estimation of Personality Pattern.

Briefly the task of the psychologist in outlining the personality has been traced, with samples of assay methods and assay materials from a few typical or strategic points. Essentially for the appraisal of a personality the psychologist needs accurate measures of a wide range of somatic or physical functions because the psychological element in these may be the best or even the only revealer of adaptation, passivity, stress or struggle. He needs samples of cognitive functions selected from every crucial point on the intellectual front and a wide inventory of the intellectual reserves. In the affective and conative strata the unmined veins must eventually give forth richly important material. We cannot rest content with meagre returns here.

The psychologist concerned with personality cannot stop with the outline of the boundaries of the individual, he must with his psychiatric colleagues be concerned with the relationships of those boundaries to others. What confronts this individual on the East and what on the West? To what extent have fortifications been built or where is friendly alliance or peaceful penetration taking place? Where within the total mental area are potential stress-faults or volcanic structure that undermine or may wreck adequate and even superior and rich superstructures?

The psychologist has to face the problems presented by the need for techniques, for methods and for the selection of strategic areas. He must work out better methods of integration in his material. The deepest psychological mysteries of reliability and validity face us in our attempts at personality formulations.

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DISCUSSION.

CHAIRMAN MEYER.—This picture Dr. Miles has given us of his workshop and of the workers, shows, I think, very evidently what a tremendous stride has been taken from the psychology that used to be the domain of introspection of the president of the college, to psychology as a natural science. It is quite obvious that here we are dealing all through with performances, and performances that have absolutely the objective characteristics we expect of what interests us in actual life, unless we should be of a largely ruminative temperament. You find here facts that have not been as a rule drawn into the domain of the textbook of psychology but evidently constitute material of psychology through their pertinence to the actual personality function of the actual person observed. You see that the man who works with it is not tied by any particular "approach"; certainly what Professor Miles has given us is the approach of a direct "going to it," seeking problems and finding the situations in which they can be studied in a profitable fashion.

1. The psychologist studies the general activity of the person in terms of energy display and rest, in this case as measured by weight consumption, *i. e.*, in terms of an apparent non-psychological item. In other words, he makes a study of a vitally important personality problem, of a mentally integrated and mentally regulated personality-function, when he compares what the person does *without* special instruction, left to his own spontaneity, in going to rest and sleep, or when instructed to act quickly. He controls the performance by weight as well as for type of motility and tempo.

2. He takes up the range not only of activity generally, but of specifically differentiated activity, as in intelligence tests—clearly a personality problem.

3. He next discusses the pursuit—motor and self-governing devices, and

4. The spontaneity as studied with the kinéphantoscope—something that obviously reaches a concern with the self-regulating processes of the personality in mentally integrated performances. Some of these situations and stagings of events are unusually complex. But all of them deal with the objective as well as subjective fact of individual differences and fluctuations of human nature and functioning, recognizable as objective performances in facts which have the same reality and actuality whether the observer is there or not. All these studies throw light on the capacity and actual performance of specific persons to meet certain tasks, viz., on the actual function in specific patterns, or what we also call purposes, of concrete life. The psychologist asks himself: Who is the person and how or why is he what he is, and how or why does he do what he does? What has he been doing, what can he do now and what can we expect in the future? He devises experimental and comparable situations and tests focussing on present functional capacity, not only with the performance the physiologist limits himself to, but including also the verbal "report" and the general observations of behavior. The performance is studied as that of a person as present, and in the light of past and future functions, *i. e.*, in a biographic setting. The psychologist deals with a person and not only with a "self," the person as seen and open to the experience of critical common-sense, inviting the control by any one

competent to do it; open to accessible environmental and personal conditions, and clearly with the personality functions, including the (formerly all-important) "data of introspection" as a necessary and essential part variously accessible to the observer and student. We deal with events, constituting and shaping the life of the person, in childhood, adulthood, or old age.

To be sure, the research psychologist is a privileged investigator, allowed to choose any material and any method within the sphere of personality function, without the physician's obligation to get as directly as possible at that which brings the patient to him. These functions are necessarily organismal, but mentally integrated, not mere "data of consciousness," nor mere functions of limited structures, but functions of the "he" or "she," the organism as person with his history and grasp on situations and outlook. Introspection is not essentially different from any other kind of "spection" or looking into things, nor is such a function of "spection" and mentation to be considered as outside of natural history and natural science. It is a necessary and obligatory concern of whoever wants to assume responsibilities in working with man or, as far as that goes, with any mentally integrated organism.

I now beg to invite the next speaker, Dr. William Malamud, to present to us in his way that which the psychopathologist and the psychotherapist of the present day makes his domain. Dr. Malamud is known to all of us by a wide range of interests and contributions in the field of psychiatry and is the author of a recent text on psychopathology. I feel that here we enter upon a somewhat different and yet I expect intrinsically very similar sort of state of affairs to be handled with the privilege on the part of the worker to use his sense and his methods according to the facts and the purposes that they bring to his mind.

THE MATERIAL AS IT ORGANIZES ITSELF WITH THE PSYCHOPATHOLOGIST AND PSYCHOTHERAPIST.

By WILLIAM MALAMUD,

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Of all the concepts that constitute the fields of present day psychiatry and psychology there is probably none that is more difficult to define than that of " personality." To most people who attempt such a definition, the concept of personality looms up as being so broad and comprehensive that it admits of no definition, at the same time so vague and indefinite that it offers no material for one, and yet the term is not only used very frequently, but also seems to have a decidedly tangible and intelligible connotation. The reason for this apparent paradox seems to me to lie in the fact that what is considered as all comprehensiveness on the one hand and vagueness on the other is really a particularly rich flexibility of certain features of this concept. To appreciate this, one must consider personality as consisting of two arbitrary components: a certain fundamental matrix, which serves as the *background* and which is as broad and as difficult to define as human nature itself. In addition to this, however, and arising out of the interaction between it and the outside world, we have a series of personality characteristics which can be designated as the *foreground*. The latter, in contradistinction to the former, possesses the quality of flexibility, *i. e.*, the number and type of personality characteristics that go into the formation of the *foreground* depend upon the given situation and the particular interests of the observer himself.

This special aspect of personality, even though not easily definable, is at least describable, and this description will depend upon the particular task that the observer has set for himself. Thus to the salesman the foreground characteristics will be those that are related to a prospective sale, to the lawyer they will mean features associated with the particular person in his position as client, witness, opposing lawyer or juryman, etc. With each succeeding shift of interests, certain personality features will shift accordingly to

the fore- or background but will remain consistent as long as the goal is the same. It is with this in mind that in the present discussion we shall attempt to delimit those personality aspects with which the psychiatrist deals in his patient especially in relation to psychotherapy and psychopathology. It is evident that to do this successfully we shall have to understand primarily what the task is that we set for ourselves in these two branches of medicine.

Psychotherapy, as a phase of therapy in general, has as its goal the treatment of certain problems in adjustment. In the center of each one of these problems we have a situation in which a person of a certain make-up and life history, peculiar to him, is called upon to react to a given environmental setting. Situations of this type must be looked upon first of all as historically unique entities. By that we mean the setting as a whole is something whose like has never occurred before nor will ever be encountered again. Furthermore, each one of the components of the situation and the interrelation of them as a whole are of equal importance in making it such as it is. The psychotherapist in attempting to control or influence this situation will, therefore, have to deal with each of the problems in an individual manner and, if he is to appreciate it properly, he will have to consider the whole situation as an indivisible entity. From this point of view psychotherapy must be considered as an art admitting of no laws or set technique, creative in that in each individual case a new approach becomes necessary.

In itself, therefore, psychotherapy could not be dealt with in the light of an analytic science wherein the need of experimental investigation would require the occurrence of repeatedly encountered similar settings. Empirically, however, as we examine our own experiences and the experiences of others working in this field, we find that underlying the individual characteristics of a given problem there exist certain features which recur in different situations in the same person and in different persons in similar settings. These, what one might call group characteristics, can thus be arbitrarily isolated in each case and constitute the analytic material which serves the purpose of comparing and contrasting groups of problems and in this way affords an opportunity to establish more or less similar methods of procedure in our psychotherapeutic work. Such material in each case can be roughly considered as consisting of two major groups: (1) A group of pathological phenomena or disease symptoms which constitute that part of the material that

is to be changed by our psychotherapeutic attempts. (2) A number of useful features in the person or his milieu which can be utilized as aids in our attempt to combat the pathological condition.

The analysis of the situation for the purpose of procuring these data constitutes that phase of psychiatric work which we can call *psychopathology*. The marshalling of these data into a constructive program of adjustment constitutes the field of *psychotherapy*. It is at this point, therefore, that psychotherapy and psychopathology approach each other to merge into the practical work of clinical procedure. They are mutually supplementary in that psychopathological analysis can only be useful when it is undertaken with the purpose of instituting psychotherapeutic measures, whereas psychotherapy can only be practiced in a systematic way on the basis of the scientific analysis afforded by psychopathology. To paraphrase Kant, we could express this relationship by saying that psychopathology without psychotherapy is empty and psychotherapy without psychopathology is blind.

A systematic presentation of the personality material with which we work in this field starts out with the appreciation of what it is that the analysis of the problem yields, *i. e.*, the psychopathological survey. Here we shall deal on the one hand with group characteristics as set off against individual variations, and on the other with the appreciation of the pathological material as set off against useful assets that the situation offers. Schematically we can present this material in the manner shown in Chart I.

In the center of this setting we have what we might designate as the *problem*, that is, the particular features which made it apparent that the adjustment of this person has become unsatisfactory. With this as a starting point, we proceed toward an analysis of the situation, the data being available through the aid of a number of " sources." As we proceed backwards in the search of such data, we get the events and conditions that have led up to the occurrence of the problem. Here we deal with the history of the development of the adjustment disturbance, then with the life history of the person prior to this disturbance. Finally, we come to the constitutional characteristics and predispositions brought into the world by this person through heredity and which are furnished

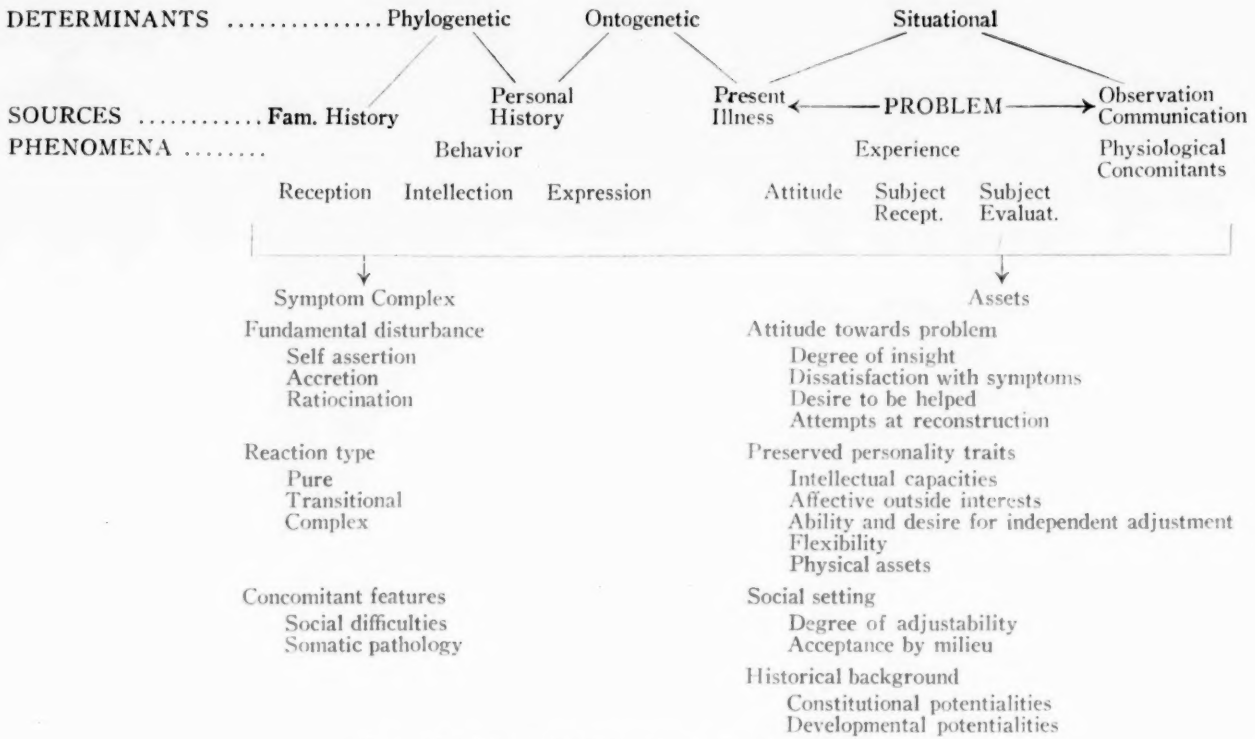


CHART I.—Personality Functions in Psychopathology.

by his own early forms of activity, and those that come to the surface in studying his family background. As we proceed forward with this investigation, our main sources are those of observation for a longer or shorter period of time of the patient's behavior, and those of communication by the patient of the experiences that take place within him.

These sources yield two sets of analytical data. Firstly, they give us an idea as to the " determinants " of the problem and those could be grouped under the categories of phylogenetic, ontogenetic, and situational factors. Secondly, they furnish us with data concerning the manner in which the person at present reacts to his surroundings, that is, the " personality phenomena."

We deal first of all with the *behavior* material, that is, the objectively appreciable manifestation. Here we have the functions of reception of stimuli as the receptivity, attention, etc., then the level of appreciation of relationships or intelligence and the way in which the person responds to the outside in terms of motorized expression, his instinctive performances, etc. Finally there are the general features of his behavior such as the quantity, the direction and the quality. To this we then add those functions which can be considered under the collective term of *experience,* obtained through communication with the patient: What are the person's attitudes, his feelings, perceptions, evaluation, his emotional tone, interests, etc? Finally, our physical examination and laboratory procedures yield the data concerning the somatic functions of the person or the *physiological* concomitants.

We are thus in possession of a number of facts which can now be reconstructed so as to give us the working material that is to serve as the basis for our psychotherapeutic program. On the one hand we have the sum total of abnormal manifestations designated as the *symptom complex* in the clinical picture. In our attempt to understand the interrelationship of these symptoms and the relationship of the whole complex to the personality, we must look into this complex for the fundamental disturbance that has been caused by the etiologic factors and which manifests itself on the surface in the symptoms observed. Whether we proceed in an empirical fashion in grouping these symptoms under some form of disease entity, or arrange them in a phenomenological fashion under the aspect of reaction types, or in a dynamic fashion try

to determine what particular function of the personality has been disturbed to produce these symptoms, our main objective is to reconstruct in an arbitrary manner a total picture of the disease in question. Finally, and to complete this picture, we must have the concomitant features which consist on the one hand of what may have gone wrong in the social setting itself to influence the picture and what form of somatic pathology may be contributory to its development.

On the other hand we try to ascertain what features in the situation can be considered as available assets. Here we look for the following general features. (1) The patient's attitude towards the problem. Under this we determine the degree of insight into the disease, the patient's dissatisfaction with the symptoms, his desire to be helped, and the attempts made by him to readjust himself to the situation. (2) We then determine those personality traits that have been preserved, and here we consider the patient's intellectual capacity, his affective interests in the outside, his ability and desire for independent adjustment, his flexibility and readiness to follow guidance, and the somatic assets. (3) Next we consider the social setting in which the problem developed, in order to determine the degree of the patient's adjustability to the particular setting and the readiness of the milieu to accept the patient. (4) Finally, we take stock of the historical background with a view of determining the constitutional assets which may exist in the patient as potentialities, his racial and family background, and the useful features which he has acquired on the basis of education.

So far as the psychotherapist is concerned, the organization of the material obtained, the choice of the facts he is going to utilize in his work and the attitude he will take to the problem, depend upon two considerations: (1) The *aims* which he sets for himself in his attempt to accomplish a readjustment. (2) The *means* which he has at his disposal in reaching this goal. The relationship between these two is such that the *aims* serve in the choice of the data to be used, whereas the available *means* help in their organization. It becomes necessary then to appreciate what these two considerations imply.

ORGANIZATION OF PERSONALITY FUNCTIONS.

In Relation to AIMS	As Indicators of MEANS
Appreciation of relationships	Understanding of problem
Rapport	Guidance
Emotional experience	Suggestion
Removal of causes	Emotional participation
Reconstruction	Social therapy
Emancipation	Emancipation
	Somatic therapy

CHART II.—Psychotherapy.

I. PSYCHOTHERAPEUTIC AIMS.

Since our goal is pre-eminently the readjustment of the patient to his setting, our aims will be as follows.

1. *The Appreciation of the Relationships in the Given Setting.*—This is really the task of psychopathological approach. It so happens, however, that in the field of psychotherapy, more than in any other form of treatment, the attempt at analysis of the situation may in itself include part of the psychotherapeutic work.

2. *Rapport.*—The success of the treatment will depend upon certain forms of contact that have to develop between the physician and his patient before any further attempts can be made.

3. *Emotional Experience.*—For the success of the psychotherapeutic work it is just as important that the patient participate emotionally in the appreciation of his difficulties as it is for him to grasp the relationship intellectually.

4. *Removal of the Causes.*—Whatever etiologic features have given rise to the development of the condition, the degree of the success of the treatment depends upon how many of these can be removed.

5. *Reconstruction.*—The treatment will include an attempt to rehabilitate the patient under the new conditions which have been created for the treatment.

6. *Emancipation.*—Finally, the patient must be given a certain degree of independence from the treatment and the rather artificial setting which it has created.

It must be appreciated that, although these steps have been enumerated in a certain order of procedure, they do not actually occur in the form of steps succeeding one another, but they usually overlap and co-exist. Thus in the process of the appreciation of the relationships there may also occur the simultaneous removal of the causes as, for instance, where those causes have been conditioned by certain experiences in the life of the individual. During the development of rapport, there may be a simultaneous emotional experience of the analytic material obtained, and during the process of reconstruction, there is a concomitant development of emancipation, and so on.

It is with these aims as indicators of the direction which we are to follow and the data obtained by our analysis of the situation as the material with which we can work that patterns of psychotherapeutic procedure can be established. Depending upon the particular needs and possibilities presented in each case and with the purpose of utilizing whatever assets the situation affords in combating the factors that are responsible for the maladjustment, we can turn to any one or more of the following forms of procedure:

II. Psychotherapeutic Means.

1. *Readjustment on the Basis of an Understanding of the Problem.*—Where the situation has resulted fundamentally from an entanglement of the person-milieu relationships and the person possesses the necessary intellectual capacity combined with a willingness to be helped, our efforts will be directed towards obtaining a satisfactory understanding of the problem. The psychotherapist will be guided here by such factors as the depth at which the disturbance lies, the presence of emotional resistance, the interest which the patient can develop in the procedure and the person who is trying to help him. Of further importance is the nature of the associative function and the degree of clearness to patient and physician of the relationship that exists between the various data that are brought to light.

2. *Guidance.*—Where the relationships in the situation are understood either on the basis of the patient's own insight or following a systematic exploration by the physician, but where the patient is still faced with the dilemma of choosing the proper mode of reaction, the physician, as an objective observer, will tend to effect

the proper choice by instituting active guidance concerning the most advisable decisions to take. Here we must consider particularly the ability of the person to grasp the reasons for the given choice and his willingness to follow in the path indicated by the physician.

3. *Suggestion.*—The flexibility of the patient, his willingness to be led by others, and his helplessness in face of the difficulty may be far in excess of his feeling of self-confidence and ability to grasp relationships. Panic reactions in the intellectually dull, lack of feeling of security or independence and strong emotional deterrents may create conditions where rational discussions and guidance will have to be superseded by limitation of independent activities and concentration on a form of behavior suggested by the physician.

4. *Emotional Participation.*—Whatever the causes and manner of development of the problem may be, there is always a pronounced degree of emotional involvement. The experiences which lead up to the development of the disturbances usually represent milestones in the process of maturation in the affective life and in our attempts at reeducation and readjustment it is necessary that the patient relive these experiences, not merely understand them intellectually. Confidence in the physician, interest in the procedure, an ability to identify oneself or others with the psychotherapist are in most cases the *sine qua non* of the treatment.

5. *Social Therapy.*—The setting in which the maladjustment takes place represents such an intricate interrelationship of personal and environmental factors that one can hardly deal with either of these components without taking the other into consideration. It is true, however, that sometimes the one, at other times the second may appear as the more important. Where social, economic or home factors tend to make it difficult for the patients to adjust themselves, an attempt is to be made to modify these. We may have to deal here with an occupation for which the patient is not fitted, a marital or family relationship which is a pronounced deterrent to adjustment, or economic factors which tax the endurance of the patient beyond his capacities.

6. *Emancipation.*—The treatment must aim at a more or less independent adjustment of the patient as the ultimate goal. Feelings of insecurity, lack of confidence in his own abilities, dependance upon others, the search for assurance and approval are frequently the important features in the causation of the maladjust-

ment. The treatment in itself especially where it becomes necessary to create an initial strong attachment to the physician may be instrumental in producing these phenomena. Under such conditions it is imperative to develop in the patient the necessary functions which may lie dormant within him.

7. *Somatic Therapy.*—The material with which the psychotherapist works includes all of the psychobiological components of the personality that are pertinent to the problem. Somatic factors whether directly responsible for the interference with adjustment or acting as determinants of feelings of inferiority or inadequacy, must be taken into consideration. At the same time somatic assets, if present, can be utilized in the rearrangement of the person's adaptation.

In conclusion I wish to emphasize that the above constitutes a very brief and rather schematic presentation of the organization of the material in psychopathology and psychotherapy. Time and space limitation make it impossible to give a complete survey of the functions dealt with or of illustrating those mentioned by means of case material. But even if these limitations were not present, it is doubtful whether at this time one could present in a systematic and logically tangible manner all the factors with which the psychotherapist works. There still remains that sector of the material which lies beyond logical grasp: communication between patient and physicians that can be felt rather than understood, ever new possibilities presented by special constellations, hunches, impressions, etc. Whether in the future these too will be reached by the light of logical appreciation remains to be seen. Within the limits thus imposed, however, an objectively valid and logically graspable set of personality functions can be psychopathologically defined and made available for psychotherapeutic practice.

DISCUSSION.

CHAIRMAN MEYER.—I do not feel that this valuable sketch needs any particular amplification. It is obviously a demonstration that here again we are not merely "psycho-artists" or in some inner position in which an exclusive "approach" is the issue. It is obvious that personality and personality interrelations and personality function include the whole behavioral relationship between the person and the situation in a process of reciprocal fitting. One thing is obvious, that therapy today is not just a casual affair. It is absolutely essential to have the person's data and attitude and function-

ing organized, and a knowledge of what it is possible for the individual or patient to grasp, the time it takes to let it become a part of him, to grow in him and to function and to meet the tasks or demands, the necessities and the opportunities.

Dr. Malamud deals with definite objective data. The patient comes to the physician because something has gone wrong, he comes as a person living within a certain setting, coming from a certain stock and upbringing, and reaching out for certain goals. A certain number of facts, be they ever so small, if they could be utilized, might often have helped in straightening out the twist into which he has landed. An analysis of the development of the disturbance leads into the history, even into the ancestral background, and into the behavior and inner experiences. The material, in the form of communications and observations, is sorted out into the factors operative as pathological *and* as helpful readjustive material. As Dr. Malamud puts it in a letter, "the psychotherapist will stress analysis *vs.* phenomenology, dynamics *vs.* statics; he will guide and suggest; he will explore and rearrange social settings; he will train, or just create rapport and collaboration and conditions for suggesting an adjustment. The factor of guidance and of self-regulation becomes just as much a part of the material, as is the 'factor of emotional lability,' the factor of capacity."

Obviously Dr. Malamud speaks of the assets and liabilities of the "he" or "she" in a historically organized situation and goal, and presupposes an organism, without, however, paying perhaps as much attention as Dr. Miles does to the total organismal and situational picture, which he evidently in his presentation leaves to other divisions of psychiatry, to physiology on the one hand and to sociology on the other, in a way compatible with the psycho-physical parallelism concept, but after all with clear objectivity.

Dr. Malamud works with the facts and functions to be controlled, to be made unnecessary, and to be replaced by what works. I am inclined to think that wherever he uses the term psycho-, we find him occupied with the live person, a real physical and functioning entity in his or her personal and cultural range of function and ambition and performance, a wide range of data grouped according to their rôle in life and the methods applicable to their control.

I felt that it would be of great importance to have in connection with this general picture of the psychopathology and psychotherapy concepts as they shaped themselves in actual practical hospital life, a concise and telling account of that particular presentation or formulation of psychotherapy that we know as psychoanalysis. I was very fortunate in getting the cooperation of one who has very deservedly the reputation of being one of the most critical, most intensely systematic and thoughtful workers in that field, namely, the Director of the Psychoanalytic Institute of New York, Dr. Rado.

THE MATERIAL AS IT ORGANIZES ITSELF WITH THE PSYCHOANALYST.

By SANDOR RADO, M. D.,
Psychoanalytic Institute, New York City.

The material studied by the psychoanalyst emanates from his patient and is biographical in kind. This material comprises as its very essence an abundance of data such as are otherwise inaccessible to investigation. The patient under examination either is unaware of these data, though they are deposited in his mind, or he is disinclined to confess them. They are brought to light, and their overwhelming significance for the scientific study of the individual clearly revealed, through the special situation designed for the patient by the analyst. In this situation, technically known as the "analytic situation," the patient is given the opportunity of developing his confidence, his feeling of trust, to the full; he is enabled gradually to remove the mask which every individual is compelled to wear in social life, and ultimately to lift that inner mask behind which every individual keeps hidden from himself what he does not desire to know about himself. The patient accomplishes this self-unmasking by the technical means of "free association." His compliance with this procedure is enforced by the pressure of his sickness, by his desire for recovery. But sooner or later, inevitably, the analytic situation changes its aspect. The patient turns uncompliant; he engages in a display of varying emotions; he behaves as if pulled hither and yon by one or another acute conflict; finally one sees he has become emotionally involved with the analyst himself in some personal way. The deciphering of this surprising phenomenon called "transference" remains Freud's greatest methodological discovery. What happens is this: The patient has been asked by the analyst to give free rein to his thoughts and feelings. He does so, and in doing so he progressively abandons the higher intellectual controls characteristic of maturity and thus revives that primitive childhood state of mind in which such controls are lacking. In consequence, he comes to feel increasingly helpless and dependent; he feels the need of parents to rely on, precisely as he did in early life. He now seizes upon

the analyst and installs him, quite automatically, in the place of his parents, thus reviving, and transferring to the analyst, all the feelings and thoughts originally related to his parents. Naturally, the very presence of such a suitable substitute for the parents as the analyst has been facilitating his submersion in uncontrolled thought.

It has to be emphasized that the whole period of childhood is dominated by the biological phenomenon which is called in animals "care of the young," in human beings, "care of the infant" or "care of the child." The child, helpless as it is, is dependent for its very survival upon the ministrations of its parents. Owing to this fact, the child's ego is able to indulge in a mode of functioning which is profoundly different from the self-sustaining régime of the mature ego. It is this archaic system of functioning, wholly conditional upon external support, that the ego of the patient tends to reinstate in the transference. The analytic transference, though in itself a kind of artefact, truly rests upon deep and genuine biological foundations.

By exploring the analytic situation, especially the transference, the psychoanalyst carries out a work comparable to that done by the paleontologist: his work uncovers beyond a doubt the most ancient and deeply buried material of the human mind. The present significance of this material from the past is two-fold: first, we encounter in it that raw material out of which the influences of life have molded the mature shape of the personality; second, as Freud and his co-workers have demonstrated in 40 years of research, psychoneuroses—*i. e.*, such nervous disturbances as are not due to a lesion of the brain—can only be explained in terms of a partial recrudescence of the infantile mind. In every neurosis we see mental processes regressively assuming infantile forms and contents, and observe the efforts of the otherwise integrated ego to fit these strange and obviously self-injurious elements into its organization.

It is, of course, the neurotic process that brings about the regressive changes in the patient's mind; the transference merely exposes and remodels them. Hence, the unique therapeutic value of the transference, which through its action assimilates the neurosis to the analytic situation. Thus the analyst comes to gain control over those complicated systems of self-injury which we term neurosis; gradually he extricates the forces of the ego from their

neurotic entanglements and furthers their tentative employment in more appropriate activities, until ultimately he is able to reconcile the patient to the joys and sorrows of realistic functioning.

Needless to say, the task of rendering analytic material accessible, and utilizing it for therapeutic purposes, requires a rather lengthy period of time and can only be accomplished by workers who are skilful and properly trained in the analytic field.

To sum up: psychoanalysis deals with such personality material as the patient is capable of expressing or exhibiting under the favoring conditions of the analytic situation. This material is of a very intimate nature, mirrors the basic impulses and emotions of love, self-love, hatred and fear, and is, in the main, such as ordinarily remains hidden or unconscious. The "*via regia*" to its disclosure is, I would add, the study of the dream-life of the patient.

That organized body of scientific thought which psychoanalysis has evolved from the study of its material is distinguished by two features:

The first of these is its consistent biological orientation. Looking upon mental life as the activity of a "mental apparatus" operated by "instinctual forces" of bodily origin, psychoanalytic theory has adopted the basic biological conceptions of living structure and dynamic functioning. Furthermore, with regard to both the structure and functioning of the mind, it has adopted from biology the genetic principle. Because of this biological orientation, psychoanalysis is ready for cooperation with somatically oriented personality research. Among the questions which stand in urgent need of such conjoint study are, to mention but three or four, that of the somatic origin of instinctual forces, of the bodily changes brought about by mental and particularly by emotional processes, of the effect of certain bodily changes upon the mind, etc.

The second and intrinsically psychological feature of psychoanalytic thought is its teleological frame of reference. Psychoanalysis has here added to the study of the utility or expediency of functions the systematic study of their pleasure and pain effects, and has thereby established the outstanding significance of the pleasure-pain balance in the mental economy; hence the stress it is compelled to lay upon sexuality. In fact, it studies both these aspects of functioning with the express ultimate purpose of improving the efficiency of the mind—in other words, of increasing the

individual's capacity for enjoyment and active achievement in life. Were I to designate in one sentence the contribution made by psychoanalysis to psychiatry, I would say this: more than any other branch of personality research, psychoanalysis has advanced the psychiatrist towards the attainment of his foremost goal, that of being the *efficiency engineer of the human mind*. It has done so despite the fact that it has not as yet been in a position to embark upon the study of the psychoses on more than a very restricted scale. To place competent psychoanalytic research workers into our mental hospitals is the task of the immediate future.

DISCUSSION.

CHAIRMAN MEYER.—It is a pleasure to hear a thoroughly artistically as well as scientifically systematic presentation of not only a method of "approach," but an optimal formulation of the data used. It is naturally hypothetical in this sense that it is a question, in view of the experience with the Pavlovian experiments, and in view of the experience of every-day life with regard to the factors of immediate disturbing character, to what extent one wants to limit the conceptions of psychopathology to the rôle of infantile developments. I quite agree with Dr. Rado that, as a problem of research, conceptions which have (although perhaps wrongly) in the mind of so many become practically synonymous with all real psychological effort and psychodynamic understanding should have their opportunity of work and test, especially if it can be connected with collateral observation of child life as it actually occurs, and shoulder to shoulder with those who have to do their clinical work under less favorable conditions. The free use of hypotheses and analogies, and the intensive consideration of one domain of life and its ramifications have been of the most stimulating character in the world of psychiatry and of the dynamics of human life, and particularly in the relation of general biological and also more individual data. The general principles and mode of operation have rarely been as clearly stated or objectively considered as Dr. Rado has put them before us.

The next topic is that of a representative of unusually interesting training as neurophysiologist, as neurologist and internist in the application to our field. We have the privilege of hearing Dr. Stanley Cobb, who is best known to us as one who acquired a most solid foundation and record of work in the organization and pursuit of neurology. Until recently the head of the Neurological Division in Harvard Medical School, he is now devoting himself to the opportunity of a research professorship in psychiatry at the Massachusetts General Hospital. In his studies of psychiatric cases, he would seem most likely pledged to cover the entire ground in a systematic way for the structural and structural-functional data and at the same time to give us the repercussions of that physiologizing emphasis upon the formulations also of the general personality problem of cases.

THE MATERIAL DEALT WITH BY THE NEUROPHYSIOLOGIST IN THE STUDY OF PERSONALITY.*

By STANLEY COBB, M. D., Boston, Mass.

As a physician who tries to apply a working knowledge of physiology and neurology to psychobiology, the concept of *integration* is to me of great practical importance. It is a concept not sufficiently specific in the minds of most of us. We vaguely know what it is to have "integrity," and we more definitely know what is meant when a person is said to have mentally "disintegrated," but positively we think little about integration. I do not wish to imply that all psychoses are due to mental "disintegration." That would be too simple. My contention is that, although an apparently well integrated person may have a psychosis, a poorly integrated person cannot function normally as a psychobiological unit. Therefore, it behooves us to be as clear as we can be about what *integration* means. Moreover, I say an "*apparently*" well integrated person may have a psychosis, because I think that when we know more about mental mechanism, even paranoid, affective and schizoid reactions may be looked on as related to lack of integration at the highest levels (Fig. 4). Hughlings Jackson [1] prophetically showed the way towards an understanding of the functional levels of the nervous system, and pointed out some of the constructive and destructive mechanisms.

Central Nervous System Integration.

Sherrington's great book "The Integrative Action of the Nervous System" was to me the initial stimulus to thinking constructively on the subject of how the brain works. Pavlov's work [2] takes the study of reflexes into the more complex functions. It seems to me that a thorough understanding of these works is a necessity for

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thinking about "mental mechanisms." I think of the *reflex arc* as the unit of the nervous function, admitting that no one has ever seen a mammalian reflex arc, and that it is only a concept; but as such it is useful in its simplicity. There are plenty of data concerning more complex reflex mechanisms. What I think I use every day on every patient is my knowledge of the final common path, inhibition, facilitation, reciprocal innervation, coordination, long-circuiting, release and conditioning. These I keep in mind in the form of a diagram (Fig. 1) which arbitrarily divides the central nervous system into five levels of integration,[3] the first four being suprasegmental mechanisms controlling the segmental functions of the fifth.

I. Cortical (most highly integrated).
II. Basal (more automatic, postural: (a) basal ganglia and mid brain; (b) bulbar.
III. Cerebellar (synergic or coordinating).
IV. Spinal (more immediate, less postural).
V. Segmental (neuromuscular reflex arc).

For an accurate understanding of any part of this great and complex mechanism, no such simple diagram could suffice, and so many modifications would have to be made at each level that the grasp of the whole idea would be lost. So the figures must be taken as diagrammatic concepts, not anatomical charts.

The careful routine neurological examination brings out many of the facts concerned in this aspect of my study of each patient. I group these under the headings:

(a) Cranial Nerve Special Functions.
(b) Motor Function (strength, coordination, reflex).
(c) Sensory Function.

(The "higher" functions such as conditioned responses are studied in the "Mental Status" and "History" as well as by special techniques described by the psychologists and psychoanalysts.)

The facts learned from the neurological examination most often useful to the psychiatrist in his study of the personality are:

(a) Whether or not there is indication of focal or general structural lesions.

(b) How the central nervous system seems to be functioning as a whole, *e. g.*, whether the threshold for excitation is low and the

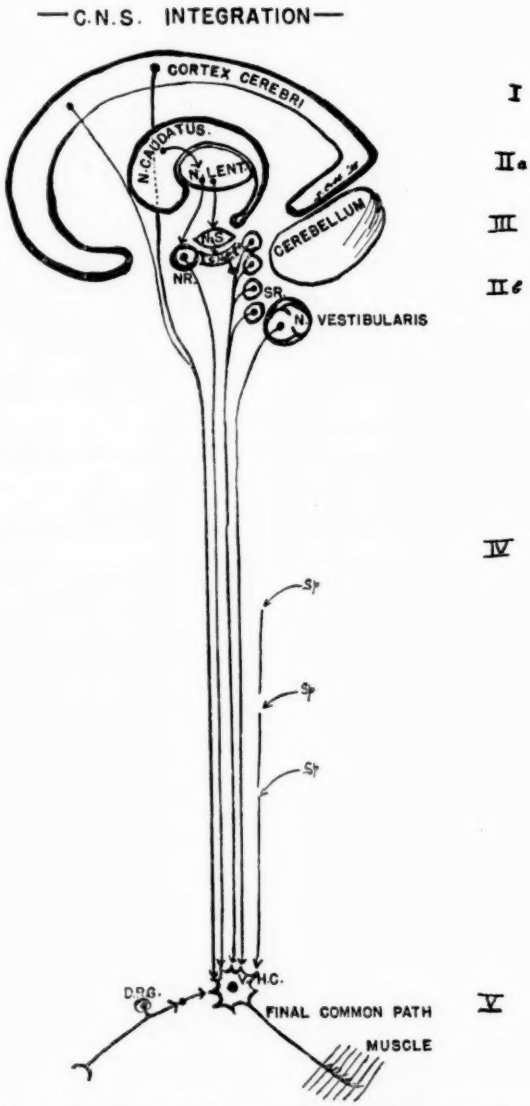


FIG. 1.—Diagram of the levels of motor integration of the central nervous system: *V* is the lowest level, the segmental neuromuscular reflex arcs. *IV* is the spinal mechanism (*Sp*) which plays on the ventral horn cells (*V.H.C.*) and influences the muscular contractions via the peripheral nerve, which is the final common path for all impulses reaching the ventral horn cell. The spinal reflexes are mostly immediate in action and brief in duration and thus have little postural element. *IIb* consists of the group of motor nuclei of the medulla elongata which are more continuous in action and thus more postural in effect; the most important are the vestibular nuclei and the reticular substance (*SR*). *IIa* is also largely postural; these are the basal ganglia proper, the caudate and lenticular nuclei (*N.LENT*) and the subthalamic nucleus of Luys (*NS*). Below these in the mid-brain and closely connected are the red nucleus (*NR*), the substantia nigra (*SN*) and the upper part of the reticular formation (*SR*). *I* is the cortical level, effecting the ventral horn cells via the corticospinal tracts both from the motor area and cells more frontally located. *III* the cerebellum, bestrides this motor mechanism with its three pairs of brachia, and coordinates the afferent and efferent impulses from and to the other four levels.

reflex activity exaggerated, or whether the reverse is true; whether metabolism is adequate; whether poisons are present; etc.

(c) How the neuro-muscular mechanism is working. Whether the muscles are slack and easily fatigued, or tense and given to clonic response. In this the use of the electromyograph as used by Forbes and Davis [4] and Lindsley [5] has been an aid. The latter has recently shown characteristic fatigue curves for single muscle units in patients complaining of chronic fatigability, in some of whom the emotional factors were important.

(d) Whether or not coordination is rapid and smooth, slow and awkward, or quick and inaccurate.

This grouping brings out of the findings an indication as to whether we deal with adequate or disturbed segmental, spinal, cerebellar, basal or cortical dominance of patterns.

Autonomic Nervous System Integration.

This system plays a partly autonomous rôle, but not as simply as was once thought. The peripheral anatomy of this system has long been known, and much of the physiology is well understood. Only recently, however, has it appeared that there are centers for the control of autonomic functions in each of the four levels of the central nervous system. In other words, the distinction can no longer be made between a "central" nervous system and an "autonomic" nervous system, because at many points they fuse, work together and are inseparable (Fig. 2).

A great deal of enthusiastic work has been expended on various studies of human autonomic reactions, but remarkably little useful material remains when the work is critically surveyed. The simple division of all humanity into two classes—vagotonic and sympathetonic—was too naive; it was too far from the facts to be useful even as a preliminary approximation. A great many pharmacodynamic tests have been tried, had their day of popularity and passed, because they were not specific enough and were modified by too many unknown factors. At present, I depend almost entirely on simple clinical examination when trying to study the autonomic nervous functions. I examine the following as significant:

(a) Heart rate and rhythm by simple palpation and auscultation, elaborated by electrocardiograph or Whitehorn's [6] cardiochronograph when necessary.

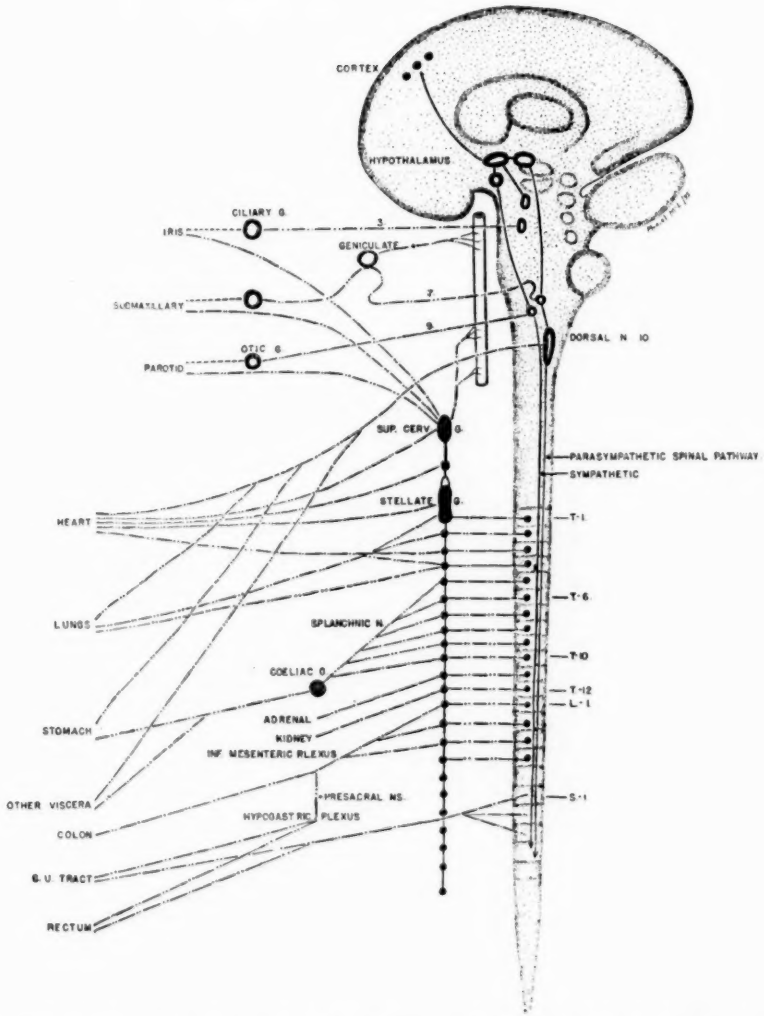


FIG. 2.—Stippled as a shadow in the background is the central nervous system as drawn in Fig. 1. Superimposed to show its intimate integration therewith is the automatic nervous system in black. The heavy black structures are the ganglia and nuclei; the broken lines are the nerve fibres (*3* is oculomotor, *7* is facial, *9* is glossopharyngeal, *10* is vagus, etc.) going to the organs as indicated. Higher coordinating centres are indicated in the cortex, thalamus, mid-brain and medulla; these control the lower centres and bring about close integration with the central nervous system of which they are an integral part.

(b) Blood pressure (observed daily), and in relation to lying-down and arising.

(c) Carotid sinus reaction on pulse and blood pressure.

(d) Pupils (wide or narrow, reactive, hippus or slow).

(e) Skin stroking test (red streak, white or both, speed of reaction, edema). Sweating reactions (to "nervousness" and to heat). Pilomotor reflexes (to stroking, blowing or Andre Thomas' method). Skin resistance (measured by galvanometer). This last is the only complex apparatus I am still using.[7] By using these simple examinations one can recognize certain types of autonomic dysfunction, for example—

THE SYNDROME OF THE "TENSE YOUNG BUSINESS MAN."

Often an athlete at college; goes into competitive business, increasing home responsibility; gives up exercise; coffee in excess; smokes and drinks too much. Gradual onset of headaches, dizziness, palpitation, fatigue. Finally has syncopal attack and calls in physician. Examination shows labile blood pressure, variable heart rate, dermographia, sweating, exaggerated pilomotor reflexes, fine tremor, flabby muscles, unstable emotions. All this cured in a few months by rest, explanation and gradually going into athletic training.

SYNDROME OF THE "APATHETIC GIRL STUDENT."

College girl, seriously inclined, with difficult home adjustment comes in complaining of being lonely and "blue." Pupils wide and rebound after contracting to light; slow, dull red streak on stroking skin; hands and feet clammy; blood pressure and B. M. R. in lower limits of normal; pulse rate slow; no pilomotor response. These are often difficult cases, but respond well for a while to change of scene, psychotherapy, regular régime, with ephedrine or thyroid medication.

This sort of classification is what certain clinicians like; but the real questions are what relationships the several patterns have; and especially what opportunities for therapeutic modification are offered in terms of mere physics, chemistry and physiology, or affective, intellectual and general ergasiotherapy.

Many other cases could be cited with varying autonomic symptoms. I tried to classify them at first, but found that there were too many variants to do it honestly. This probably means that we are emphasizing the wrong symptoms and signs. Names like "neurocirculatory asthenia," "neurosis" and "disordered action of the heart" do not help us much. The patients showing these symptoms are numerous and form an important part of medical

practice. They must be looked on as total-personality problems if they are to be helped. This is the problem of this symposium, and we need guidance in the light of experience.

Circulatory Integration.

Complementing the nervous system, this is the other great co-ordinator of the whole organism. Blood, with its oxygen, food and hormones must reach every cell. Changes in the blood or blood flow may affect every tissue. The brain is dependent on this blood supply, and the blood flow is largely regulated by the vasomotor centers in the brain, so there is a reciprocal integration.

There has been much work on circulation in its relation to nervous and mental functions. I will only mention some aspects with which I have had personal experience. In the first place, *blood flow* by its variation can affect consciousness,[8] brief anoxemia sometimes even causing unconsciousness. Carotid sinus stimulation may cause a fall in blood pressure profound enough to bring on syncope. We have shown that vasomotor nerves reach cerebral vessels [9] and cause constriction and dilatation. Though this physiological mechanism seems to be relatively weak, it may vary pathologically and account for cerebral vascular syndromes [10] some of them precipitated by strong emotional stimuli. There are also marked changes in blood flow caused by changes in the simple chemical constituents of the blood, CO_2 causing vasodilatation and oxygen excess causing a relative vasoconstriction, and these may effect changes in acid-base equilibrium, hemoglobin-oxygen combining power, hydrodynamics and intracranial pressure.

Secondly, there is the field of hormonal effects on circulation, all the way from the effects of adrenalin on general and cerebral blood flow [11] to the new and less understood but important effects of acetylcholine,[12] histamine,[13] sympathin,[14] even to the theories of the humoral transmission of the nerve impulse.[15] Obviously, the environment and the personal reactions to it plays a great rôle in this field and affects the peripheral and perhaps the cerebral circulation.

Lastly, the blood carries to the nerve cells food and vitamins. Much has recently been learned concerning the latter. For example, lack of vitamin B causes both central and peripheral neuritis,[16]

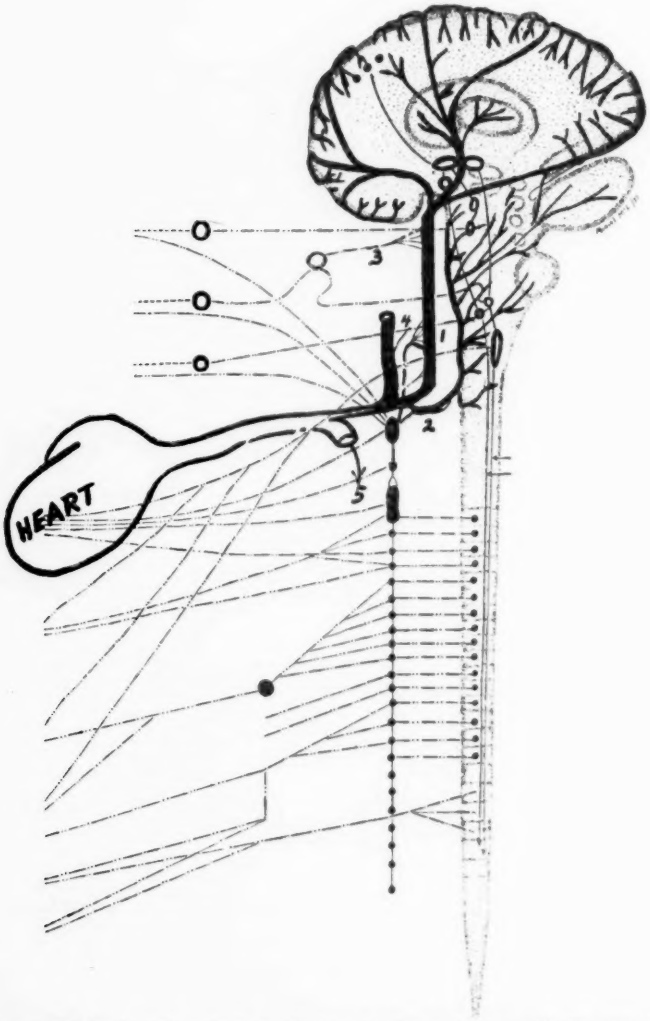


FIG. 3.—The heart and cerebral circulation are shown diagrammatically superimposed upon Fig. 2. The close reciprocal integration of circulation and brain are illustrated by the autonomic nerves running to the heart. These are influenced by medullary and cerebral nuclei, which in turn are affected by changes in circulation. (1) shows the vasoconstrictor nerves going to the carotid artery to follow through the cerebral arterial tree. (2) vasoconstrictor nerves to the vertebral artery and bulbar arteries. (3) the vasodilator nerves from the geniculate ganglion to the cerebral arteries via the carotid. (4) the nerve from the carotid sinus joining the glossopharyngeal nerve to enter the medulla. (5) blood supply to the rest of the body.

with demyelinization of the axones and impaired function. Other vitamins affect the nervous system in different ways. But the story is too long to more than touch on here.

Psychological Integration.

This symposium is primarily for physicians. Our prime interest is helping folks. We would like to know how psychological integration works in building up personality and character, and in tearing down these edifices through psychopathology.

A most important group of functions lies in the no-man's-land between the most highly integrated functions and the simpler in-

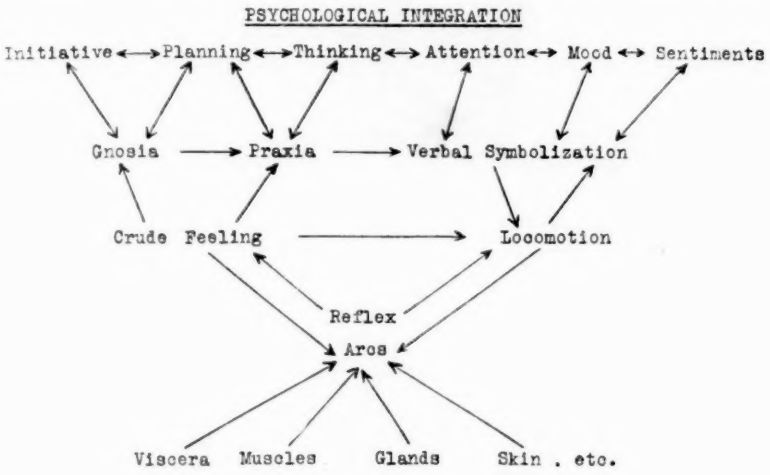


Fig. 4.

tegrations I have described (Fig. 4). They are praxia, gnosia and language, better known by their negatives: apraxia (loss of learned skill), agnosia (loss of knowing), and aphasia (loss of verbal symbolization). These functions are localizable to a certain extent in the cerebrum; much is known about their relationships and their analysis into part-functions like agraphia. Yet they are not always easily separated from the functional disturbances known to arise from lesions of the basal ganglia, on the one hand, nor from the disturbances of the most complex integrations ("psychoses") on the other hand. The disturbances of attention, of mood and of

"personality" may manifest themselves outwardly in symptoms almost identical with those of a focal lesion causing apraxia and aphasia. Often long observation is needed to ascertain that patients with such lesions are not suffering from "dementia præcox." It would seem greatly worth the pains, therefore, to study the mental changes in patients with focal lesions with all the psychological means available. And vice versa to study mental aberrations which we consider psychogenic, by methods that will elicit defects in the fields of knowing, learning and symbolization. Wertham [17] for example considers it very difficult to draw a line between what Head calls "semantic aphasia" and what he would call "demented." Moreover the amentias, especially those of childhood, would certainly be better understood if some such method of study were instituted; "feeblemindedness" is not accurately enough described by "low I. Q."

Unfortunately, there are yet not enough carefully accumulated data to allow us to say we know much about personality. Only look at the attempt I have made to show the elements and their integration, in the relatively much simpler fields of neurology and hematology; the gaps in our knowledge are so great even there that any comprehensive theories are little more than good guesses. It is a good time just now to reiterate the old warning that theory must not run too far ahead of our facts. Of course, one must think over data and therefore speculate, otherwise observations would be in vain; but wisdom comes in, keeping a good balance between data, theory and practice. At present, it seems to me that in psychology, theory is running ahead. Data will have to be gathered and skeptically considered for a long while yet before we build anything but the most tentative theories, and even then, we must ask continually—"Why do you believe that?" "What is your evidence?" always keeping in mind that "truth" even in the "exact sciences" is only a "first approximation."

Perhaps a glance back at history will help us to keep our balance. Cerebral localization has held popular interest for a century or more. At first, on almost no data, but on a shrewd guess, the idea of localization was started. The devotees made complex maps of the brain, showing with authoritative accuracy the most minute localizations of ridiculously unimportant functions. But not only the phrenologists ran wild. The students of aphasia in all scientific

sobriety perpetrated some cerebral maps that are laughable today, in the light of experimental work such as that of Lashley and clinical observations like those of Head and Weisenburg. We do not yet know enough about "personality" to accept the dogmas of any theory or school. There is room for us all to work. There is no need for pessimism. There is much more factual material available than there is patience and determination to use it critically. We can only make progress if we are mutually tolerant of ideas. But we must have no tolerance for doubtful data.

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DISCUSSION.

CHAIRMAN MEYER: It is undoubtedly tremendously important that we should, in our conception of the unitary organismal functioning as personality, realize that we have a good many subunits. While, after all, integration in the present-day psychiatric discussions means unit-formation in the constitution of the organism capable of functioning as "the person," we have in the mass make-up of the individual many relatively independent parts, each with its particular rhythm, units that have to be granted a certain latitude of autonomy, open also to a study of either the next lower integrative factors or the factors that are *more* comprehensive and inclusive and using that particular relatively autonomous *part* also in its broader personal and also social spheres of integration. In the outline that Dr. Cobb has given us, we get a singling out of the general principles holding for some of the components, which then undoubtedly have got to become more and more familiar to us also from the point of view of what they can do, not only by themselves, but among themselves and in the function of the "he" or "she," the psychobiological unit-function, *i. e.*, under their own functional control, in the interfunctional control between the various mechanisms, and finally under the control that comes about through the organs being absorbed in the functioning of the highest types of integral function, that of the person, the mentally integrated functioning, in all its physical organismal and yet behavioral nature.

There, of course, comes the very great question, whether the concept of integration used is elastic, comprehensive and effective in all directions. After all, what it means most particularly for the psychiatrist is this: that instead of our cultivating a psychology that is a stratum superimposed or just layered upon the rest in a sterile epiphenomenalism or as an other-worldly soul, as more or less unassimilated facts, we have more and more of a realization that we are dealing with a more perpendicular sort of organization in which very autonomous and peculiar functions exist in a segmental way, then in more and more combination (as cerebellar and mid-brain integrations), and finally become part of the mentally integrated functioning through the thalamic, striatal and cortical integrations, and finally as part of a specifically biographically intelligible *person*. Thus, in matters of *the stomach*, we have the functioning of the various cells of the stomach, including its muscular components; next, in such a condition as vomiting, the neuro-muscular components figure as reacting to local irritation and tension, or in the functioning of the stomach in connection with the taste mechanism, and in seasickness with the vestibular apparatus; or we find the functioning of the stomach as

part of the emotional apparatus, and finally those rather intricate, deeply-rooted biological phenomena of stomach reactions that go very definitely with larger happenings, such as the vomiting in pregnancy and finally the vomiting even in a pseudo-pregnancy, or in a clearly *imagined* pregnancy. So we get there a wide range of the functionings and interrelations, not in the form of a layering but in a perpendicular type of involvement in which every part has got to be recognized as potentially a structure with a rhythm of its own, functioning as a unit, but with modifying, intrinsic components of lesser integration, and also with utilization of those parts and functions in the larger groupings, and finally in the person.

When you think of the particular management that Dr. Cobb refers to in the case of the thyroid gland, where you have the workers of the Sinai Hospital group in New York very largely using the regulation of the life and its functioning and the emotional attitude of the patient to bring about re-regulation of the thyroid; and when you have, on the other hand, the surgeon who hopes to regulate every point of it through the removal of adenomas and of varying quantities of the tissue, you can see how many things there are to be worked out in that field. Nevertheless, the most important thing is that we shall develop a recognition of how the integrations actually stratify themselves, and how we can determine and use the material in what operates psychobiologically, as the person, which calls for perhaps a more comprehensive or practical formulation than references to Gestalt or psychoanalysis. There arises the question, to what extent the work with the parts will substitute for or supplement the total function; *i. e.,* the organization and control of the person still remains the problem for work in the psychobiological integrations within which the data on the cooperative parts will have to show their value.

Now, an even more detailed relationship or field of investigation is that which goes directly for the chemical data and I was very glad indeed to get the cooperation of Dr. Whitehorn, who has a wide experience in that field but also has in an active form the very natural but not very often felt need and impetus and energy to try out what the facts are in the psychobiological realm. I should like to call on Dr. Whitehorn, who will no doubt give you very much better than I could say it, the general trend of his conceptions and experience.

THE MATERIAL IN THE HANDS OF THE BIOCHEMIST.

By J. C. WHITEHORN, M. D.,
McLean Hospital, Waverley, Mass.

I have been asked to speak, as a biochemist, about the factual material dealt with as personality-function in the field of psychiatry. I have taken the request quite literally and will make no attempt to discuss biochemical researches, as such, nor even to evaluate their possible significance for psychiatry. I take it that this group has been brought together by Dr. Meyer, not for the purpose of contrasting or comparing the varied technologies (either instrumental or conceptual) in which we, as actual workers, differ from each other, but rather to clarify whatever measure of agreement can be found concerning that special set of facts about patients which each of us thinks of as personality-function.

The door of the chemistry laboratory is not perhaps the best point of vantage from which to view the problems thrust upon us by our patients. In some distant wings and buildings are John Jones and Jane Smith, singing and yelling and tearing up indestructible mattresses or painting murals with feces. Over there, too, is William Brown, sitting, apparently inert and stupid, but emerging on occasions from this apparent stupor with a magnificent outburst of hate, or perhaps, whispering an ecstatic prayer of adoration to the Virgin Mary. Trickling in from those halls to the laboratory comes a collection of blood specimens, urines and spinal fluids. Sometimes a patient himself is brought over and set in a chair or laid on a bed, while ingenious instruments pry into the hidden structures and functions of his body.

From my particular point of view, I find it convenient to orient my remarks by reference to a well-known chemical experiment, in order to bring into perspective the relative rôles of chemical conditions and personality functions. If the substance ethyl alcohol is introduced into the human organism in sufficient amounts, the person's behavior is altered. The results may be summarized as a loss in critical discrimination and a feeling of pleasant self-

satisfaction, with an aftermath of temporary unpleasantness. This might be called the simple effect. One encounters in psychiatric experience, however, certain persons addicted to episodic overindulgence in alcohol. They frequently get into trouble while under the influence of alcohol by reason of aggressively asocial activity. While sobering up, they express an exaggerated remorse, vowing abstinence. These vows are notoriously unreliable. It is also well known that such persons commonly resort to alcoholic habits again, even after a prolonged enforced abstinence. Here, therefore, the doctor has to deal with reactions which extend beyond the physiological effects due to the immediate presence of alcohol. Here is an additional set of facts—facts about past experience, attitudes toward work and play, personal inclinations and evaluations, and styles of accommodating diverse desires. It is this type of fact which we discuss to-day under the general heading of personality function. It is the specific intention of this symposium, as I understand it, to avoid entanglements in explanatory hypotheses and to focus upon the expression of the factual material itself, as each of us has found means to state it, in the conduct of our different lines of investigation.

My own particular investigations have been concerned principally with those personality functions commonly called emotional reactions. I began with the notion that those psychotic disorders classified as manic-depressive were somehow fundamentally determined by abnormally intense emotions. I have felt obliged by my observations and reflections, to alter this opinion very radically. I do not at present believe that manic-depressive patients are living through inner emotional experiences of an intensity at all comparable with the extravagance of their behavior.

Some years ago, feeling less and less sure of the schematic formulations on which I had started, I began trying to reformulate the psychiatric problems on which I was at work in terms which might provide a closer approximation to the problem as actually present in the patients, and I found myself in the midst of the psychobiological field so courageously envisaged by Dr. Meyer many years ago, and so patiently and assiduously studied since under his inspiration. I could not qualify as an adherent to all that has been said in the name of psychobiology. I must confess to a certain uneasy apprehension about such terms as "the total person-

ality " and " the total situation," probably because I feel personally incapable of dealing with concepts implying so close an approach to complete knowledge. My personal preference is for Dr. Meyer's own, more modest, terms—the " he " or the " she " of the " complaint problem." At any rate I set myself the somewhat less appalling task of finding what relationship might be discernible between a patient's behavior in the hospital situation and his (or her) " normal " conception of the meaning and value of life. I do not mean merely that I questioned patients, but by observation, by casual conversation, by games, by talk about books, anecdotes, movies, etc., by acquaintance with relatives and friends, and especially by the attentive consideration of the patient's wit and humor, I sought to participate sufficiently in the patient's life to apprehend his (or her) system of evaluations, in much the same way that one becomes acquainted with friends, but with more systematic exploration of intimate details. This kind of work requires a large amount of time for each patient—an expenditure which is also justified by its therapeutic value. But I speak of it now as a research project. As such, it has brought forcibly to my consideration a body of facts which find their most direct and natural expression in terms of sentiments.

I use the term sentiment to designate a person's behavior-dispositions, which have been developed by his or her past experience, on the basis of the native endowment, and which have of course become associated with certain feelings determined by those past experiences. It is just by these feeling-associations that one is justified in accepting the word " sentiment " as the term for behavior-dispositions, which might otherwise be conceived as merely " habits." In simple terms, a sentiment is an attitude which has become fixed by habit. The distinction between sentiment as an habitual attitude and emotion as a disturbing inner turmoil is significant, not only for the conceptual formulation of psychotic reactions, but also practically for their psychiatric management. For example, as a therapeutic measure, a warm bath may alleviate in some degree the inner turmoil of an acute emotional excitement, but it may have quite the contrary effect on a patient who is giving exaggerated expression in over-active behavior to a sentiment of belligerent independence and who apprehends the bath as a subjugation—exemplified by a young woman patient who said, " Yes, I know

what this place is. It's a God damned laundry. Well, I'm nobody's dirty linen, to be soaked and scrubbed."

Perhaps the simplest and most obvious demonstration of the sentiments operating in a patient occurs in the situation labeled " mis-identification " when a patient misidentifies the nurse or doctor as a character—say husband, wife, father, uncle, or lover—significant in his or her past life, invests him with the characteristics of that person (as conceived by the patient), and behaves toward him in some definite pattern—affectionately or contemptuously or spitefully or with exaggerated respect, etc. Such a situation reveals something of the patient's sentiments toward the character so personified.

The detailed clinical study of sentiments has to proceed empirically according to the patient's style of behavior, rather than by a doctor's schedule. It may begin at any time by a consideration of the patient's dramatization of the hospital situation.

What rôles does the patient assign to the persons about, and what attitudes does he show toward the characters so cast? Does he show attachments or aversions to particular persons? What epithets, titles or endearing terms does he apply to such persons? Is food-refusal or suspicion associated with particular food-servers? Is he respectful or contemptuous toward certain doctors? Is this attitude stiff or playful? Does he assign a wide range or a narrow range of character rôles to those about him? What is his most regular and consistent characterization of himself and others? How do these characterizations vary through the day?—after visits?—whose visits?—when hungry or well-fed? Are reactions to the opposite sex crude or refined?—clothed in romantic or religious terms?—with what discrimination of persons?

Clinical observations of such points are often noted in hospital records, but too often merely as proofs of a disordered mind. They can be made constructively useful as clues to the formulation of the patient's sentiments, subject of course to further additions and modifications.

It is usually possible also to relate the patient's dramatization of the hospital situation to the family set-up of his childhood. Sometimes the clues offered are not numerous, for a time, as with one patient I studied, a young woman whom I first saw lying rigidly

in bed, muttering or yelling "We people, you people, we people, you people, we people, you people." This went on day after day with almost unvarying regularity for about two weeks. As she grew more mobile further developments and remarks made it plain that she was acting out in a confused, exaggerated and lurid form the tensions and antagonisms of her childhood home. She had an Irish Catholic father and a mother of old New England stock. This fact might earlier have revealed to a more penetrating observer what she meant by "We people, you people."

A more communicative patient may also reveal much about his sentiment development while discussing his entrance upon adult life. Was it an escape from frustrations?—an opportunity to participate in interesting activities?—a chance for revenge?—an ordeal to be suffered? Did he conceive of himself as a potential leader?—a moral prophet?—an ordinary participant in life?—a slave?—a cog in a machine? How did he conceive of the values to be got out of life?—to be put into life? Did he wish particularly to bring credit to his family?—honor to his school?—fame to himself?

I have strung together here a few simple questions such as arise in the clinical study of sentiments. The answers to such questions must of course be evaluated with some regard to other sources of knowledge, not merely for the sake of anamnestic precision, but to grasp the significance of falsifications.

The sentiments recognized and evaluated by such a study during a psychosis and afterward, do not reach an unmanageable diversity. There are many recognizable repetitions. The childhood set-up, with its relatively few characters, provides the paradigms for most subsequent sentiment development. Common centers of growth or standards are: mother, father, the patient's self, siblings, playmates, teachers, God, the Virgin Mary, heroes, villains, bogeyman, etc. Forms of development are love, hate, disgust, respect, resentment, admiration, jealousy, fear, etc.

There are even quite elaborate systems of sentiment-organization which are recognizably alike in different people. There is apparently in everyone a system of loyalty sentiments and security sentiments, focussed on the same persons or ideals, and knit closely together. There is a sentiment of independence, appearing in the reverse as a resentment of control, which has a marked growth in

late adolescence, and not infrequently gets snarled with the loyalty-security system. There are of course innumerable complicated interactions of these main systems of security, loyalty and independence, involving the family, childhood gangs, school and college loyalties, hero worship, professional ethics and prejudices, or political, scientific and religious faiths. In the reconstructed histories of some patients one can trace the successive transference of such conflicts from one arena to another, without much growth or progress; in others, each new scene of adjustment occasions an enlargement and liberalization of the sentiments.

One finds for example extreme fixations of sentiment on property and wealth. One sees elderly gentlemen whose financial games have been upset who flinch and tremble and sulk, nursing their injured prestige like certain small boys whose toys have been disturbed. One sees others, such as the perpetual Bohemians, who seem to devote their hectic lives to demonstrating their "independence," and one is reminded of Mather's comment on Botticelli, "Eccentricity is the natural expression of a soul too independent to conform and too weak to reconstruct," or the less elegant simile from the corn belt, "He's as independent as a hog on ice."

As a further advance toward a realistic grasp of the "total personality" of patients, it is possible, at least with certain patients, to coordinate one's knowledge of their sentiment systems into a general picture of their character-orientation, considering character as the organized ensemble of the sentiments in action. Two generally contrasting plans of character-organization emerge from the pictures—the obligative orientation and the zestful orientation. The obligative plan evaluates life and its opportunities in terms of duties and ideals, right and wrong, finicky tastes and esthetic or conventional standards—sometimes accepted with fingers crossed, and sometimes violently rejected, but always in the foreground of evaluation. The zestful plan is represented in the more hearty, practical, genial uses of life.

I count it of some significance that even in my somewhat limited sphere of observation and study, I have been impressed by the relative scarcity of whole-hearted rascals and hearty sinners in the psychotic group. It appears to me that the great bulk of psychotic patients have striven toward a virtuous idealism, often a very fastidious ideal. It may be true in some cases that their intimate his-

tories reveal a woeful amount of weakness and easy thwarting, but even in those cases the official façade of character—the accepted system of evaluation—is strikingly idealistic.

* * * *

And now, you may ask, what has all this talk about sentiments to do with the active prosecution of scientific research in psychiatry? First, it represents an outcome of the intention to follow the investigative leads in whatever direction they point, and, in pursuance of that intention, an effort to come to grips with the actual life-behavior of psychotic patients. It is therefore for its own sake a form of scientific investigation in the field of psychobiology. As a partial reservation to its scientific character, one must acknowledge that in the study of sentiments there is a subjective participation by the doctor which cannot be entirely eliminated. Facility in perceiving and delineating sentiments and their relationships is somewhat determined by the observer's personal experience and aptitude. There are, however, part-projects which can be handled in a completely objective fashion, as, for example, a study of language-patterns which I am at present carrying through. In this connection I hazard the opinion that the speech productions of patients are over-rated as indications of what is going on in their minds. Many so-called delusions, for example, are only misunderstood metaphors. Language is after all a form of *behavior,* more particularly a form of interpersonal behavior, and may better be dealt with as such, rather than as a direct transcript of hypothetical "thought-processes." The letters that patients write to doctors can be taken as samples of behavior, more specific and definite in some respects than a moving picture record. A file of such letters constitutes, as it were, a series of biopsies. From material of this sort which I am collecting and examining it appears that patients show an appreciably greater tendency than do most normal persons to establish a characteristic personal pattern of deviations from empirical average norms, and to repeat the pattern in successive samples. This repetitive tendency has been traced, in some cases, where material was available, into prepsychotic and postpsychotic periods. I mention this investigation, although it is not yet completed, because it illustrates the possibilities for the strictly objective study of the habits

and sentiments concerned in one special personality function, namely, language behavior.

* * * *

I have spoken now at some length about the sentiments as behavior-dispositions, about the methods of acquiring specific and detailed information concerning those behavior-dispositions in particular cases, and about the possibilities for utilizing such case-material in the systematic delineation of character-organization, for correlation with other lines of study and for therapy. I presume it is not possible or desirable to subordinate under the heading of sentiment all the features of personality function significant for psychiatry. But I do wish to say that this mode of expression and of study has provided for me one feasible way of uncovering, and dealing with, a considerable amount of significant factual material in this field.

DISCUSSION.

CHAIRMAN MEYER.—I feel we have reason to be very grateful to Dr. Whitehorn that he took the license of going into what actually happened to him when he seriously tried to make correlations between what he has perhaps too modestly kept quiet on, and that which, after all, is also expected of him when he has to draw his further conclusions concerning the functioning as a person. It is exceedingly interesting to hear a statement of an actual serious study of the affective life of a person in such a psychiatric situation as Dr. Whitehorn found himself confronted with. I am only sorry that he left out certain groupings which he did not repress in an earlier draft, but which evidently he did not feel able to compress into what time limits we have put upon him.

Somehow in the maze of data one has to face in clinical observation, one cannot help wishing for more and more summarizing concepts. Among the summarizing concepts undoubtedly figure very largely those which we hope to be able to do something with. There are certain chemicals that are valuable and we sometimes depend on. We feel exceedingly happy when in an individual not otherwise cooperative we are able somehow to get the semblance at least, and sometimes the partial evidence, of something like a lock and key arrangement between certain affective and attitudinal and dispositional disturbances and the barbiturate medications or kindred substances and endocrine products which somehow in the vision of progress of some of us have conjured up the wish for a chemical department with particularly pharmacological interests.

What Dr. Whitehorn particularly has brought home is the difficulty of facing the fact or rather the issue of our dealing with data that are so widely interwoven with collateral factors. I was very glad indeed that in this

chapter he came to single out a particular type of fact, the sentiment, which by itself is almost too varied to figure in a lasting impression upon one's evaluation of the patient, unless one turns actually to the patient and not only to the descriptive words. We learn to realize that in our verbalizations we have not enough definitions in mere terms; just as little as there was very much to be had out of too narrow a type of speculative introspection even by trained victims. It is essential that in practically every one of the psychobiological facts we should be ready to specify the settings, which can only be had in the observation and description and controlled function and trial of the real patient as a biographic unit in the process of biography in the making, with the settings and patterns and plastic dynamics of a specific individual. But I do think that there will be developments in which perhaps not exactly lock and key arrangements will become available but at any rate some things that work plainly, not only as alcohol does in its particularly treacherous and enticing way, but perhaps some chemicals that work as more hopeful and healthful helps.

Now we come to our last topic.

Temperament and factual considerations and discussions raise the issue of organicist preoccupations in psychiatry, and undoubtedly there is in the study of *structure,* in health and disease and in the living and the dead, one of the most fundamental anchoring grounds for accuracy and for the formation of systematic conceptions of what Dr. Cobb described in particular in the functional systems he has singled out. Throughout pathology and therapy, there goes that concept of the dependability of a structural organism and of its peculiarities and transformations.

I have asked a colleague whom I know particularly for her independence of thought and for the determination to carry things through and think them through, to give us samples from her workshop, illustrating types of disorders that give us the fundamental data of tissue changes and tissue processes. There are post-mortem findings which are purely incidental, but also others from which we might be able to make constructions and hypotheses for a sound and critical pathology and therapy in the sense in which I usually use the word pathology, as study and interpretation of developments *in vivo* and not only as post-mortem findings.

Dr. Bender, a pupil of the organicist, Dr. Orton, will give us some exceedingly interesting samples of not only the kind of seasoned material out of which most of the structure and localization and process-studies and the major correlations have been made so far, but the kind of thing that actually occurs in the practice of an admission hospital.

ANATOMOPATHOLOGICAL DATA ON PERSONALITY FUNCTION.

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Introduction.

My part in this symposium is to contribute data from the field of neuropathology and from the point of view of an organicist as Dr. Meyer chooses to call me. In so doing I wish especially to emphasize the importance of the integration of clinical and pathological data. Neuropathological data, however complete, that has not been integrated in the worker's own experience with preceding clinical studies on the same individual can contribute little to our knowledge of the functioning personality. The same worker should study the functioning personality during life and the structural deviations after death. Furthermore I wish to emphasize that the total personality picture as we perceive it must represent much more than the integration of psyche and soma. The psychophysical personality must be organized in the life-time of the individual, throughout all the life cycles of development, maturation, the autonomic life rhythms and incidental episodes, involution and deterioration and finally death. It is not always possible for any one worker to accomplish all of the necessary studies in the majority of cases. But it should at least be the function of an organized staff to focus all of the clinical, neurological, psychiatric, social, psychological and neuropathological data to the fuller understanding of those personality problems which are typical of that hospital service.

In the past year (1934) the Bellevue Psychopathic Hospital staff has made autopsy studies of approximately 150 cases which were admitted to the hospital for psychiatric observation, study and care. This represents a great amount of pathological data which may be related to personality defects. It is of a type more or less specific for an active psychiatric service in contrast to what is usually seen in state hospitals where the majority of cases are those with schizophrenia, manic-depressive psychosis, cerebral

syphilis and senility. The types of cases studied by our staff include alcoholism, head injuries, vascular accidents, suicidal deaths due to poisons, and acute infectious processes with cerebral involvement. The value of the data accumulated lies not alone in the neuropathological studies after death, but in the correlation of this data with the clinical, neurological, psychiatric and psychological studies on the same individual before death which affords us an understanding of the personality function as a whole. The correlation of clinical personality data with neuropathological data is, of course, many times multiplied by the much larger series of cases with similar disease processes and clinical symptomatology who do not come to autopsy study and also other clinical pictures with comparable symptom complexes and personality deviations but with undoubtedly different etiological factors. It will be the special concern of this paper to correlate data accumulated by various members of the Bellevue Psychopathic Hospital Staff which is concerned with personality functions in relation to anatomopathological structure of the central nervous system.

I. Alcoholic Encephalopathies as a Prototype.

Alcoholic encephalopathy and myelopathy has already been discussed by Dr. Schilder and myself [1, 2] and subsequently many more cases have been studied both clinically and pathologically besides an even greater number of cases of all types of alcoholic psychosis and alcoholic episodes and habituation without psychosis but with personality deviations are being constantly observed and studied. We have found that the alcoholic encephalopathies present a more or less specific clinical syndrome involving extensively both the soma and the psyche as well as the integrating vegetative and segmental neurological functions and that after death many of these functional disturbances may be correlated with lesions in the brain that are specific both in the type of the process and in the localization.

1. SEVERE ALCOHOLIC ENCEPHALOPATHIES.

The most severe and fulminating cases of alcoholic encephalopathies show the most profound disturbances in the state of consciousness, in the impulses, in instinctive behavior, in volitional

behavior, in involuntary motility, in sleep and the autonomic rhythms and vegetative functions and in the somatic economy. Such individuals will lie with clouded consciousness, without any impulses even in connection with their personal needs. In some cases there may not be any impulses for speech although if speech can be stimulated it will be found intact. Perception and orientation and memory will be impaired. The patient will be dull and lethargic by day, restless and fumbling by night. He will show oculomotor palsies, changing rigidities and choreiform movements of the limbs and other involuntary and rhythmic movements, as well as grasping and groping and a sucking reflex. There will be profound vegetative disturbances with progressive debility and emaciation; an elevation of temperature without discoverable septic processes, and finally cardiac and respiratory irregularities. The associated peripheral neuritis and pellagra syndrome has been shown by Jolliffe and Joffe [3] to be at least partly dependent upon associated dietary deficiencies but is probably also related to the centrally determined vegetative disturbances.[4] The clinical picture referable to the encephalopathy is often progressive even after the intake of alcohol has been stopped and dietary deficiencies supplied, although the pellagra and neuritis may improve. Hemorrhages may develop in the retina. The pathology is related to the surfaces of the brain, the brain stem and the spinal cord and the ventricular system, or wherever the central nervous system comes in contact with the spinal fluid. The parts most severely involved are about the third and fourth ventricles and the aqueduct of Sylvius and the base of the brain where the largest number of vital centers are near to surfaces and where the spinal fluid flows least freely. The lesion is characterized by a marginal gliosis on the surface of the cerebrum, cerebellum, brain stem and spinal cord which, however, does not involve the tissues deeply but is also associated with an underlying congestion and slight vascular changes in the vessels that penetrate the tissues from the surface. The more important lesion is a productive and invasive ependymitis which involves all parts of the ventricular system with an underlying vascular disturbance characterized by congestion and endothelial proliferation and degeneration, perivascular hemorrhages, capillary budding and organization; in some of the most severe cases there has been acute softening with phagocytic "gitter" cells in some of the more

exposed and vulnerable centers, especially the mammillary bodies. This lesion tends to invade the periventricular vital gray centers especially the mammillary bodies and the hypothalamic centers but also the thalamic nuclei, the nuclei about the aqueduct including the oculomotor nuclei and the fasciculus longitudinalis, the roof and floor of the midbrain, encroaching on the red nuclei, the roof of the fourth ventricle involving the dentate nucleus of the cerebellum, the floor of the fourth ventricle involving the cranial nerve nuclei. In the anterior part of the ventricular system, the lesions involve the centers for consciousness and sleep, and the impulses and the instinctive drives and the affect and the more integrated vegetative functions which are related to the hypothalamus and the mammillary bodies. In the center of the ventricular system, the lesion involves the extra-pyramidal centers for motility control and tonus, and the oculomotor centers. In the posterior part of the ventricular system the lesion involves the lower vegetative functions and the vestibular and cerebellar centers. In the spinal cord, the vegetative centers of the lateral horn, Clarke's nuclei and some of the adjacent tracts are involved. On the surface of the brain, the glial changes rarely invade farther than the first layer, though there may be some congestive vascular disturbances which invade two or three layers and contribute to the symptomatology of disturbances in the intellectual functions with confusion, impaired memory and perceptive difficulties.

2. LESS SEVERE ALCOHOLIC ENCEPHALOPATHIES AND KORSAKOFF SYNDROME.

In less severe cases the ocular signs and involuntary motility disturbances are prominent. The clouding of the consciousness with delirious features and difficulties in perception, with psychic resistance, rhythmic movements and grasping and groping and sucking reflexes and difficulties in the sleep rhythm are characteristic and may, in cases which are not progressive, give way to a Korsakoff's syndrome with difficulties in memory and the integration of perceived material but without clouding of consciousness or perceptive difficulties, but with restlessness and pointing and fumbling. Visual motor gestalt functions which may be tested by the copying of perceived form show characteristic deviations.[5] In the encephalopathies with clouding of the consciousness, difficulties in perception,

and motor impulses for rhythmic movements, the gestalt is incompletely perceived, reproduced in fragments, and the fragment distorted by perseverated strokes. In the Korsakoff condition where the consciousness has cleared and perception improved, the gestalt is still distorted with the tendency for repetitious impulses. The confusional, delirious, integrative and perceptive difficulties are related to the reversible congestive disturbances of the cortex and tend to clear if the process is not progressive. The clouding of the consciousness is associated with the vascular disturbances invading more deeply into the ventricular centers and also tends to clear if the process is not progressive. However, the motility, oculomotor, vegetative, impulse and instinct disturbances are dependent upon more lasting changes in those nuclei nearer to the ventricles and are more persistent.

3. PERSONALITY CHANGES IN CHRONIC OR RECURRING ENCEPHALOPATHIES AND RELATED STATES.

The encephalopathic and Korsakoff states are not always progressive and may tend to subside with probable recurrences, of course. Such a case was reported by Dr. Schilder and myself,[1] (Case 24) with ocular, pupillary and tension disturbances with clouding of the consciousness, drowsiness and maudlin behavior, all of which tended to progress for a while, but later subsided and then partially recurred with subsequent drinking. Such remissions show us the typical personality of the chronic or periodic drinker which may be defined in terms of poorly handled instinctive drives and impulses, weakness in volition, an empty amiability, poorly stabilized and integrated emotions, poor judgment, and disturbances in the normal autonomic and habituated rhythms of sleeping, eating, working, sociability, with recurring alcoholic episodes. In such cases the same pathology is found, but with more gliosis, fibrosis and vascular organization. There may also be seen a superimposed and more deeply invading vascular disturbance which is associated with the final acute episode.

4. CHRONIC PARANOID MENTAL DETERIORATION.

A case of chronic paranoid deterioration associated with alcoholism has been reported in connection with my studies on myelopathies [2] (Case 2).

The patient was first admitted to the Bellevue Psychopathic Hospital 15 years ago at the age of 32 years, in a chronic alcoholic hallucinosis. She was confused, fearful, suspicious, hallucinated; she did not sleep nights and showed no interest in the activity about her; she spoke of being poisoned. She was treated for a year in the Manhattan State Hospital. In the following 15 years her son describes her as a constant drinker and progressively deteriorating in her habits. She did many queer things based on her superstitious-like delusions, and had many persecutory delusions especially against those that were nearest and dearest to her. For the last half of that period it was impossible for anyone to live with her and she was unable to do any work. Finally, she was unable to care for her own needs and was brought to the hospital in an advanced stage of encephalopathy and myelopathy. She had hallucinations of microptic, motile figures and spoke of "magic things." She was suspicious and negativistic with resistances at both the psychic and neurologic levels. The detailed organic and pathological picture has been described.[2] On her first admission 15 years before there were no neurological signs; in the course of the 15 years there were gradual personality changes of the paranoid type. The final picture was a state of delirium, with grasping, groping, changing rigidities, disturbed peripheral sensibility and profound vegetative disturbances. The pathology was extensive. About the ventricles the ependymitis with an invasive gliosis and vascularization was most severe especially about the third ventricle where it deeply invaded the mammillary bodies, the thalamus and the hypothalamus. Similar lesions were found in the midbrain, invading the colliculi and also into the medulla and spinal cord. There was also an acute super-imposed vascular disturbance with congestion and many small hemorrhages. These were most marked beneath the ventricles and on the surface of the brain but also occurred in other parts of the brain stem and also involved the cortex diffusely especially the temporal lobes. The marginal gliosis of the cortex, although superficial, was somewhat more invasive than usual.

5. DELIRIUM AND NEURITIS.

Acute deliria with neuritic signs do not often terminate fatally unless complicated by some intercurrent disease. In the more prolonged deliria there are nearly always present one or more signs which suggest encephalopathic lesions in the brain stem. These signs may be ocular disturbances, changing rigidities, choreiform movements or other disturbances in the motor impulses, especially with the tendencies for rhythmic movements, or with pointing at hallucinations which has been related to grasping and groping. There are vegetative disturbances with disturbances in the sleep rhythm and episodes of clouding of the consciousness. It has also been pointed out that the neuritic disturbances often associated with pellagra are probably secondary to the vegetative disturbances

and to dietary deficiencies. Some of the delirious features may be also secondary on the same basis as well as on the basis of cortical pathology which has been described in cases associated with pellagra (Winkelmann).[6] The abnormal sensory experiences of the alcoholic individual with peripheral neuritis have been described in part by Bromberg,[7] Schilder[8] and myself.[9] We have felt that these pathological sensory experiences even in the tactual field were not alone due to the peripheral defect but had central components as well. There is a tendency to coalesce the sensory phenomena into a complete simplified gestalt, to adapt it to the mental content, even hallucinatory, to prolong the experience, and to modify it by the irritative vestibular phenomena. Delirious individuals do not often die of the alcoholic condition alone, but death often results from head traumas, pneumonia or other associated condition. In such cases we commonly find an ependymal proliferation with underlying glial and vascular disturbances. In such cases the involvement of the mammillary body is highly diagnostic.

6. HALLUCINOSIS.

Acute and even recurring alcoholic hallucinosis does not show as a rule any outstanding neurological signs of lasting duration. However, the tremor is present and the convergent reaction is often disturbed. Both of these phenomena have been described and assigned to the mid-brain by Schilder.[10, 11] In some there are more or less Parkinsonian features sometimes with deep-seated depressive reactions. Pupils are often widely dilated and for a while react poorly to light. Cerebellar phenomena with ataxia and dizziness is common. There is, therefore, at least some evidence for a sensitivity of the midbrain and diencephalic centers. Furthermore, many of our finally fatal encephalopathies have had earlier episodes of apparently benign hallucinosis. Although there is no doubt that the content of the hallucinosis concerns itself with the constitutional and personality difficulties that occupied the patient before he started drinking and are brought to the surface by the alcohol as shown by Bromberg and Schilder,[12] yet it is also possible to further interpret the alcoholic hallucinations on the basis of the instinctive and impulsive difficulties that arise from disturbances in the basal centers with feelings of guilt over the weakening of volition,

with castration fears concerning the regressive sexual drives, with preoccupations concerning death and fear of sleep in relation to disturbances in the centers of consciousness and vegetative centers. Hypnogogic hallucinations are common, as the patient struggles desperately against sleep because as it approaches the hallucinations become so vividly distressing. Such phenomena may be related to the mid-brain centers. The vestibular features in alcoholic hallucinosis are well known and described and discussed by Schilder.[13] Because of vestibular irritation, in part at least through the vestibular nuclei about the fourth ventricles, the hallucinations are modified by micropsia, polyopia, metamorphosis, and movement. Also vestibular influences have their effect upon the states of consciousness, vegetative phenomena and the postural model and tone.

7. CATATONIC-LIKE STATES.

Three cases resembling acute catatonia were described by Schilder and myself[1] (Cases 11, 12 and 13) as the third type of alcoholic encephalopathies. Two cases with histopathological studies of the brain were reported. An additional case was subsequently reported by me[2] (Case 5). Clinically they showed dissociation in thinking, together with less marked disturbances in consciousness with motor restlessness, myoclonic movements, asynergia, changing rigidities and a grasping reflex. The dissociation in thinking was more conspicuous than the clouding of the consciousness. The motor phenomena of cataleptic and athetoid postures and myoclonic movements were in the foreground, while oculomotor signs were absent. Delirium is sometimes present in the beginning but changes to dissociated hallucinations with grasping at imaginary objects. Such patients are often observed in a cataleptic rigidity or are very restless with many rhythmic movements and facial grimacing. The dissociation of the thought processes is conspicuous and associated with hallucinations. The pathology shows the typical periventricular encephalopathy with extensive invasive gliosis with an associated lesion in the cortical or subcortical areas. In the one case there were diffuse cellular changes in the cortex and in the other two cases there were subcortical vascular changes especially in the occipital lobe associated with arteriosclerosis.

We will now consider a number of other pathological conditions which also produce lesions along the ventricles and in the base of the brain as well as in the cortex and subcortex which are correlated with somewhat similar pictures in the behavior of the personality.

II. Carbon Monoxide Poisoning.

Two cases observed by us took gas for suicidal purposes and showed catatonic-like features with episodes of clouding of the consciousness for several weeks before death. In one case there was recovery after the initial poisoning with gradual development of catatonic resistance and only final clouding of consciousness. In both cases the typical carbon monoxide encephalopathy was present with areas of perivascular hemorrhages and beginning of softening in the basal ganglia and thalamus with associated patches of demyelinization and gliosis in the subcortical areas, especially in the occipital lobes. One case was associated with arteriosclerosis and the other one with alcoholism. In other cases of carbon monoxide poisoning that have not ended fatally, the initial stupor and clouding have cleared up, leaving some psychic resistance and finally a more chronic condition of optic agnosia in which the perception of form is much more severely disturbed than the perception of color. This disturbance is undoubtedly related to the subcortical lesions in the occipital pole.

Another one of our cases was a boy of 14 who was accidentally overcome with gas. At first he was in a delirious-like state in which he was very noisy, restless, resistive, fighting off all attention, entirely out of contact. There was a distorted sleep rhythm, the temperature was elevated, he was incontinent and fed by force. He did not speak and showed no impulses directed towards the environment except in his negative resistances. At this time the pupils were widely dilated and reacted poorly and there were positive Babinski responses on both sides. After three weeks he was somewhat more cooperative to care, he could get up and walk but he showed impulsive crying, sucking reflexes, athetoid and dystonic movements, resistances, flattened facies and monotonous speech. Especially, however, it was discovered that he could not perceive objects and could not recognize his parents by sight, but called all men "daddy" and all women "mother." However, he seemed to lack any knowledge of his visual defect. The first improvement in his vision was to recognize colors. Over a period of a year there has been some return of perception for form, while his perception for color has been good for some time. In the second or third week of his illness he presented a

picture which is so typical of brain injuries to children that I wish to refer to it in several connections, although in this case it was somewhat clouded by the serious disturbance in the visual perception. He presented at that time the picture of an unruly, bad child; what one might call an acute behavior problem. He was infantile, emotional, attention-demanding, petulant, noisy, disobedient, with all sorts of uncontrolled impulses. This was not in keeping with his normal personality and later it left him somewhat apathetic and lacking in impulses. In this case the disturbances in behavior, in impulses, and in motility can be related to the basal pathology and the special perceptive disability to the occipital subcortical lesion. (Our cases of carbon monoxide poisoning will soon be more fully reported by Dr. Abeles.)

III. Tuberculous Meningitis.

A somewhat similar picture to the other organic catatonic states has been seen in a case of tuberculous meningitis:

A 19-year-old boy was brought to the hospital with the history of being treated for tuberculosis the year before. He was in a catatonic state on admission with negativism and a tendency to become excited when disturbed, although he did not express any bodily discomfort. The negativism was especially marked in the jaw and neck but could be overcome without evident pain. He was suspicious and distrustful of medical and nursing care. At first there were no apparent organic signs, no temperature and no changes in the spinal fluid. Gradually his psychic resistances, negativistic behavior, and cataleptic posturing gave way to a more cooperative response with complaints of headache, a rising temperature and classical meningitic signs with blurring of the optic discs. He gradually passed into coma and death.

The first impression of many of the staff was that this was a case of schizophrenic catatonia, except that there was no bizarre content and no dissociation in thought processes demonstrable. The brain showed the extensive invasion of the meningitic process on the base of the brain extending through the optic recess into the third ventricle and around the brain stem, with a beginning progression up over the vertex of the brain and with early cellular changes in the cortex. In this case we may emphasize the earlier changes at the base spreading up through the optic recess and into the third ventricle and into the ventricular gray center as the first site of attack of the disease, with a tendency to spread by the meninges over the vertex and to involve the cortex from the meningeal vessels, as Wertham [14] has shown in other types of meningitis as the second site. This may account for the catatonic-like picture which was apparently associated with intellectual clouding and was without content.

IV. Cerebral Arteriosclerosis.

Cerebral arteriosclerosis is an inexhaustible field for the patient student of behavior. The clinical pictures are protean and the opportunity for correlating various symptom complexes with structural deviations are many, although the difficulties that arise from the diffuse changes in any given brain must be recognized.

Catatonic features have not been uncommon in arteriosclerotic individuals examined by us. They usually occur where there has been no history of paralysis and no focal signs or symptoms. The patient will lie in a Parkinsonian posture with fixed facies, without impulses, unwilling to talk or be disturbed and show resistances of different levels, sometimes with psychic negativisms, distrustfulness or irritability, sometimes with emotional apathy and an organic type of spasticity. The amount of mental confusion or thought dissociation is probably dependent upon the extent of the cortical involvement. The pathological findings are, of course, usually diffuse but always include the ventricular gray centers and the basal ganglia, with a variable amount of cortical and subcortical involvement.

V. Encephalitis.

The relationship of encephalitis to personality changes is very well known. The pathology has been thoroughly described, especially by von Economo,[15] and its localization in the basal ganglia, the midbrain and the diencephalon is accepted by all. Schilder [16] and Jelliffe [17] have both analyzed rather thoroughly the relationship of the disease processes to the personality changes. Jelliffe has emphasized the neurotic features with the compulsive and obsessional behavior and relates it, not directly to the disease processes in those parts of the brain which function for the affect, the impulses, and the instinctive drives, but on the basis that the disease brings forth regressive tendencies in the personality. Schilder's analysis more closely relates symptoms to pathology although regressive tendencies must be included in the symptomatology. I want to discuss some data on this subject which are clinical but interpreted on the basis of the pathological data that are already well known, and which suggest a relationship between those neurotic symptoms that concern the instinctive drives and the impulses and the ego problems with the centers about the third ventricle.

In the Outpatient Department of Bellevue we have seen several individuals who have complained of various types of obsessional and compulsive neurotic symptoms or hypochondriases with inadequate drive and diminution on scattering of their impulses. Their symptomatology, though typical of the neuroses, could not be traced back to infantile mechanisms, but instead had developed after an infectious disease which had also left them with one or another slight neurological sign relative to the eye muscles or motility. These cases are not amenable to psychotherapy to the same extent that the usual neuroses that grow out of the infantile situation difficulty though many psychiatrists will also admit that the purest form of neurosis is not so amenable to psychotherapy as we would like to have them.

A 30-year-old man came to our outpatient clinic complaining, "I am unable to concentrate, don't have any interests, feel inferior and depressed, feel always fatigued. I used to be a good mixer, jolly, the life of the party, and an efficient worker; now my work has slowed down and I am unable to mix socially. I left my wife because our life was no good together and she got impatient with me. I go to church and think of God as a man with a penis and that idea comes back to me all the time and worries me." He complained of sleeplessness, perspiring freely at night, impotence, tremulousness of the hands. He showed a tremor of the hands, eyes and tongue, a slight flattening of the facies, a loss of dissociated movements in the right arm and hyperreflexia. These complaints and findings had all occurred since an obscure encephalitic-like illness three years ago.

V-A. Encephalitis in Childhood and the Psychopathic Personality.

Encephalitis in childhood has presented us with some unusually interesting data on the question of the development of the psychopathic personality and with these cases as prototypes we have been able to get a better understanding of many other cases of psychopathic personality both where known lesions can be located in the basal ganglia and where we are pretty well satisfied that there are no structural lesions in the brain. Here again I wish to offer clinical data from living cases with interpretations on the basis of known pathological data.

A boy of 14 who had been studied at Bellevue for over five years has a history of encephalitis at the age of nine months with continuous social maladjustment since and progressive neurological signs which include ocular strabismus and nystagmus, choreiform movements and marked restlessness

and hyperkinesis. He scores superior on the standard intelligence tests but at the same time shows considerable defect in visual perception and imagery. There is a defect in the integration between his intellectual functions and his emotional and instinctive life. His instinctive life is without inhibition. He masturbates on the impulse and his marked motor restlessness often leads him to run away without motive and without plan. His hyperkinesis is continuous and usually unmotivated. His emotions are flat and he has no interest in others except to get their immediate attention. He has no ambitions or plans for the future and learns nothing from the past. He has no sense of responsibility towards society, no understanding of right or wrong, no sense of loyalty or remorse, and no ability to form close attachments. The pattern of one's part in society which has evolved as humanity has evolved with civilization and which forms with the maturation of the brain and personality of the growing child has not been implanted in this child. He has no super-ego and no character. One can suppose a lesion that has involved the basal ganglia and has involved the integrative centers for the eye muscles and for the extra-pyramidal motility and has spread in the optic thalamus and perhaps towards the occipital lobes but has left the intellect or the periphery of the personality intact.

VI. Head Traumas in Children and Psychopathic Personality.

Head injuries in children (Blau [18]) often produce similar personality types and may be explained on the basis of injuries in or about the base of the brain as they occur in children who show no motor or intellectual disability as a result of the injury but in whom there may be slight neurological deviation suggestive of brain stem injuries. In the rather large series of cases of brains of individuals who have died as a result of head traumas we have nearly always found hemorrhages with vascular disturbances along the brain stem, especially about the third ventricle and aqueduct. Whether they are related to the immediate injury or to secondary vascular disturbances is not certain, except that in individuals who sometimes live several days after the accident, the hemorrhages in the brain stem and at base of the brain are often much fresher than the original hemorrhages about the area of injury which would suggest that they represent secondary vascular disturbances. In three cases of acute excitement after head injuries in children who showed no focal neurological signs we observed the type of behavior characterized as an acute bad boy behavior, or acute behavior problems in children who were usually well behaved and in the course of two or three weeks again became well behaved. Their behavior was

similar to that described in the boy with carbon monoxide poisoning, the children were mentally clear and in good contact, they could be reasoned with for awhile but were very unruly, disobedient, petulant, and used every form of infantile attention-getting behavior, and could not control their impulses at all. Such behavior might be accounted for by acute vascular disturbances in the brain as it disappeared in a few days or weeks.

Chronic personality changes are also observed.

An eight-year-old boy who had a normal personality, had an accident with a fracture of the right femur and a linear fracture of the skull from the left frontal region through the parietal and back to the lambdoid suture. After the accident a complete change in personality was reported. He acted like a young child, he was noisy, restless, disobedient, he would run away, would get lost, had to be brought home by the police, he told lies, he would not attend school. He was taken before the Children's Court and sent to a disciplinary institution but could not be controlled. We found him to be aimlessly hyperkinetic, distractible, inattentive, with no control of his impulses. His speech was flighty almost to the point of incoherence. He was emotional but always on an egocentric basis, he was impudent, boastful, aggressive, demanding, and his emotions had no depth and were not directed towards anyone but himself and in reaction to his immediate impulsive needs. He did not sleep well and had strong sex drives which led him to masturbate freely in any corner. Neurologically there was a flattening of the facial expression with monotonous speech; all motor activity was poorly sustained and tone was poor under tension, he could not sustain a grip, and the alternate motion rate was poor. It has been necessary to care for him in a state institution.

Birth injuries may lead to injuries of the undeveloped brain and produce a similar abnormal type of personality.

Recently there was brought to Bellevue an extremely over-active colored boy of nine who had a spastic paralysis of his left leg and arm associated with considerable hypersensitivity of the limbs which would point to a thalamic lesion. Ocular convergence was absent. His hyperkinesis was a blind unmotivated activity with an emotional instability that was very near the surface. His blind rages were beyond control. His grasping, clinging demand for attention suggested the similarity of this symptom to an actual grasping reflex. He was capable of every form of asocial act.

Of great interest is the fact that personality deviations as severe as any of these we have described may develop in a child who has had no birth injury, skull fracture or encephalitis but who has been deprived of the normal family-social life at the critical period in his life, which is the pre-school age, when his personality is matur-

ing. As a result we find disturbances in the integration of the maturation-patterns of the brain as serious as though the injury were a structural one. It often happens that a child who has been without a normal home-life at the time when perceptions are developing, speech and intellect are maturing and the emotional life is forming, is deprived of a necessary family-social pattern which consists of a mother and a father and siblings and the chance for the solution of the Œdipus complex and the chance to form life-long attachments, to learn morality, loyalty, and the various human and social values, and to develop the super-ego or character, is later brought to the psychiatric wards with a personality defect not much different from those seen in the children whose brains have been structurally injured at a similar time in the life cycle. Such a child is always emotionally infantile, always craving the love of the mother it never had and is insatiable in his demands for attention, grasping and clinging psychically. He is never able to make an attachment, he has no social conscience. His instinctive life is used at the impulse level and is not integrated into the social fabric. His sexual impulses are aborted into some form of psychopathic response before they develop into the normal adult pattern of a strong love attachment and the building of a home and family and the reproduction of the family-social unit pattern for the next generation. He is restless and has marked hyperkineses. His instability as he grows older will show criminal or psychotic episodes. Neurological deviations are usually absent but motility mannerisms may so closely resemble them that at times they are confusing to the examiner. This clinical picture may be related to a deprivation pathology due to an inadequate normal social and emotional pattern for the child to perceive and experience and integrate into his cerebrum at the time when the cortical centers were maturating and being integrated with the underlying periventricular and basal centers.

From our experience with personality deviations in children which may arise from brain injuries at birth or shortly afterwards, from disease processes early in the development of the child and from abnormal social and emotional deprivations at the critical maturation periods, one may arrive at a general conclusion that different disease processes may produce similar personality pictures if they occur at similar stages in the life cycle of the individual.

Furthermore, similar personality pictures may be produced by non-structural traumas to the integrating personality if they can produce a disturbance in the integration of the whole personality which leads to the same end results such as deprivation of social and emotional experiences which are necessary to the normal development of the child. One may add one other possible origin and that is the possibility of a constitutional deviation or defect in development in those brain centers which serve the functions of the instinctive or impulsive life or those centers of the brain which are injured in the so-called organic type of psychopathic personality.

VII. Head Traumas in Adults and Personality Problems.

Schilder [19] has discussed psychic disturbances after head injuries in a series of 25 selected cases from our Bellevue service and has correlated the disturbances in consciousness with the ventricular gray centers and the confusional disturbances in gestalt function, perception and memory with cortical lesions and the more chronic Korsakoff picture as combined effect. He has shown that changes in the mood after the acute confusional state or excitement are dependent upon the constitutional reaction type although some psychogenic or organic factors may modify it. Hypochondriasis with apperception of the injury and lack of insight into the residual disturbance is more or less specific for parietal lobe injuries. In accordance with the data of our material at that time and since, he has emphasized the importance of associated vascular disturbances in the ventricular gray and the similarity of the resulting clinical pictures with alcoholic encephalopathies.

Of course a large number of head traumas do occur in alcoholic individuals. However, in some instances there is no alcoholic history and the lesion is different in that there is no ependymal and glial change and the mammillary bodies are not involved.

In one outstanding case, a 35-year-old man was brought to us 10 days after the skull fracture from another hospital where he had adjusted well until the day previous when he became acutely psychotic. He had a xanthochromatous spinal fluid. He was apathetic and blocked. He was hallucinating and said the voices told him there was something the matter with his head. He complained of his head and other parts of his body and blamed the condition on the physician's stethoscope which he considered a dangerous instrument. He was fearful and withdrawn and negativistic. He showed cataleptic mannerisms and did not react adequately to pain.

He did not recall the head injury. At this time the neurological examination showed only the psychic resistances and unequal partially unresponsive pupils. After three weeks he suddenly passed from a resistive negativism into a partial stupor in which he was resistive on one side of the body and flaccidly paralyzed on the other side. Fresh blood was found in the spinal fluid. Craniotomy was unsuccessful. Autopsy showed a fresh hemorrhage over the site of the old injury in the left parietal region. There was microscopic evidence of softening and gliosis over the area of the injury, extending well into the subcortical area and there were also many perivascular hemorrhages with beginning of softening in the ventricular gray in the midbrain and diencephalon.

The pain asymbolia which was a symptom in this patient has been localized by Schilder and Stengel [20] in the left parietal lobe in all sorts of lesions whether syphilis, softening, skull fractures and tumors. We have observed the same thing many times in our material. Schilder and I [21] have also shown a similar symptom in catatonic schizophrenia which we ascribed to a change in the attitude of the personality towards pain or a disturbance in integration between the cortical functions and the reflex mechanism. We see here again the possibility to compare symptoms that arise from the disintegration of psychic functions with those that arise from structural disease or injury. The problem of localization is viewed in the terms of Schilder [22] in his discussion of localization of the body image or the postural model of the image. There is evidence for localization of disturbance of function or for symptoms but not for function itself which is built up from the integration of many other functions. The subject of localization of cortical function cannot be discussed more fully within the limitations of this paper.

Brain injuries associated with sensory aphasia often show special problems in relation to the personality.

A 27-year-old boy was brought to the hospital with a depressed fracture of the left fronto-parietal region. He developed convulsions with a right hemiplegia. A decompression operation revealed lacerations and maceration of the fronto-parietal region with multiple hematoma and intraparenchymal hemorrhages. He recovered rapidly without residual hemiparesis but with a sensory aphasia associated with a restless manic-like behavior in which he was facetious, euphoric, child-like and always trying to make a joke about money and girls even while he was very paraphasic. There was a demonstrable disturbance in his visual motor gestalt patterns which revealed a more primitive type of perceptual motor experiences, when he copied the standard gestalt figures [23] (Case 8). Each pattern was intact

and in some way the gestalt principles were expressed. He continued, however, to improve and after many months at home he still showed very slight sensory aphasia but was always amiable, somewhat euphoric, tended to cling more to his mother, was less self-reliant and less adequate. He still had no recollection of his head injury and no understanding of what happened to him. His family said he had always been an amiable, sociable person.

In some way the injury had simplified his personality, exaggerating his individual characteristic which normally he had been able to integrate into his more complex personality. His whole personality suffered, as his visual motor gestalt patterns did, by a reversion to the primitive pattern, a simplification, an exaggeration of his individual characteristics.

Another patient with a somewhat similarly located lesion who also had an operation that confirmed the extent and location of the lesion showed a marked aphasia in which he always misnamed every article as "toilet-paper" and "physic." For days and weeks he had practically no other nouns at his disposal but these two terms. He was irritable and would cry like a child for "toilet-paper" and "physic" day and night. Even as he improved he continued morose and hypochondriacal, irritable and self-centered. We learned that he was a cook on the seas, that he had no friends and always lived a seclusive shut-in life and took a physic every day of his life. In this man, too, the visual perceptive gestalt patterns were simplified and primitive when he was most aphasic and in the same way we find that his personality became modified into the simpler pattern.

In cortical lesions which modify the personality we do not find losses of parts of a summated whole but simplification of the whole pattern.

A head injury with a similar localization in a child of 10 years who was a bright boy in the fifth grade, was instructive from several points of view.

There was a sequestration of bone over the left temporo-parietal region which had to be removed in the third week. The underlying dura and brain were normal in appearance at that time. After his skull fracture this boy first suffered an acute excitement which I have already described. As this subsided he was a shy, submissive, apathetic boy with some memory disturbance and an anomia. As this cleared he still had a specific educational disability strikingly like a congenital reading disability, except that this child could tell us that before the accident he could read, write and spell as any normal child of fifth grade education and that afterwards he was himself painfully aware of his loss of the last one to three years in each of his school subjects. Educational tests confirmed his own impressions. He was reduced to the level of a second or third grade pupil. At

the same time he was reduced in impulses and in feeling of adequacy and showed evidence of fatigability which could be seen in the progressive narrowing of the visual fields on prolonged tests and diminution of hearing by the audiometer. Gradually he has been regaining his school knowledge in the same order in which he originally learned it, with most marked difficulties in spelling.

Our understanding of the pathology underlying this disability must not be too rigid in spite of the fact that the skull was fractured in that area overlying the classical speech areas of the cortex. This would not account for the early acute disturbance in personality reaction nor the subsequent inhibition in impulses and in reception of visual and auditory perception, although these symptoms improved parallel with the improvement in the language disability. We must remember that language has been recently acquired by the human animal and written language and spelling most recently, and furthermore that it is a function that is reacquired with some effort by each growing child, and that this child after an initial period of anomia had not lost all his language ability but only that part which he had most recently acquired and that he tended to regain it in the sequence in which he had originally learned it, but at a much more rapid rate. That the injury was on the dominant hemisphere was probably the important factor.

The importance of unilateral cortical dominance in special language disabilities of the congenital type has been emphasized in the significant work of Orton.[24] Special language disabilities of the congenital type have so far revealed no pathology although the strong family history of left-handedness and other language disabilities is always very suggestive. They probably represent difficulties in the acquisition of relatively newly adapted learning patterns in the maturing child, especially in those cases where a cortical dominance is not fully determined even at the motor level.

VIII. Disseminated Arteriolitis.

In contrast to my discussions up to this point I wish to discuss a pathological entity which tends to involve the deeper layers of the cortex more than the other processes which I have discussed, although the deeper nuclei of the brain are also involved. In keeping with the cortical lesions this process tends to disturb the periphery of the personality with confusion, perceptive difficulties, and diffi-

culties in the orientation of time, especially, and also space, and in attention. The concept of the periphery of the personality has already been elaborated by Schilder [25] in his discussion on the psychology of dementia paralytica. Here he emphasized the disturbances in attention and in handling the material from the perceptive fields as well as the banality of the mental content which does not deal with the complex-loaded material but the most casual events in contrast to the hallucinations and mental content in schizophrenia, and I may add in alcoholic hallucinosis. Such disturbances may be related to lesions of the mantle of the brain in contrast to the axis. Winkelman [26] has emphasized in a series of papers the importance of the smaller blood vessels of the brain in psychiatric conditions and shows that many abnormalities may be studied in relation to histological changes in the brain, especially in the acute infectious and toxic processes that tend to produce an arteriolitis which, in the more severe cases, may be associated with areas of softening and patches where cortical cells are destroyed and lost. He has studied a series of cases of severe infections and toxemias of rheumatic fever and bacterial endocarditis. Two cases which I am reporting fully [27] showed a productive alterative disseminated arteriolitis of the various body organs in response to an infectious process. In the brains there was an involvement of the smaller cortical vessels such that the pre-capillary arterioles showed a nodular or bud-like process of hypertrophic endothelial cells that markedly narrowed the lumen and often closed it entirely. Since the localization was such that it involved the arterioles just as they were breaking into capillaries it was found that not only the deeper layers or third to fifth layers of the cortex were mainly involved, but also the Purkinje layer of the cerebellum and the nuclear masses of the base of the brain. The clinical neurological signs were diffuse and could be related to the brain stem, cerebellum and cortex. The mental signs were psychomotor retardation with lack of impulses, disturbances in sleep, and the vestibular type of hallucinations, then there was a progressive confusion with disturbances in attention, perceptive difficulties, disturbances in calculation and especially in the time concepts, with growing bewilderment and perplexity, and finally a progressive clouding of the consciousness and coma before death. It is possible by means of the mental symptoms to trace the development of the lesions in both the brain stem and in the cortex.

Discussion and Summary.

We have considered first the alcoholic encephalopathies as a prototype in which we can see that the alcoholic ingestion, the mental symptoms, the motor disabilities, the vegetative disturbances, and finally the neuro-pathological lesions are all a part of an integrated pattern or gestalt in which no one feature can be readily understood without a fuller knowledge of all the other features since they are all intimately related. The pathology is found in all those parts of the brain which are exposed to the spinal fluid including the outer layer of the cortex to a minor extent usually, but sometimes involving deeper layers of the cortex at least by congestion, but especially involving those vital gray centers about the third and fourth ventricles and the aqueduct between them. We therefore find functional disturbances in the extra-pyramidal motility and oculomotor centers, in the vegetative centers, in those centers involving the autonomic rhythms, including sleep and consciousness, in the centers that subserve the instincts and impulsive life and the affective life. The character is built upon these functions with the aid of the content and experience which are brought to the personality by the perceptive functions which are elaborated through the cortical mantle. In the less severe cases or by partial recovery from the deep encephalopathic states we may observe the Korsakoff syndrome where the cortical disturbances produce difficulties in perception, memory, attention, and orientation. Even in the chronic cases with remissions, the typical alcoholic personality with empty amiability, poorly sustained drives, defective judgment, weakened volition, and disturbances in the life rhythms, with inevitable recurrence of the alcoholic habit suggest a far-going non-reversible disturbance in the centers of instincts, impulses, affects, and vegetative centers and a poor integration between these centers and the higher cortical levels. In alcoholic hallucinations, although the content is undoubtedly determined by the complexes of the individual, their conformity to pattern and the close relation to the difficulties in instinctive life and volition, as well as to the vestibular influences, suggest that they are irritative phenomena arising from the same centers.

The catatonic-like episodes in alcoholic encephalopathies, as well as in carbon monoxide poisonings, tuberculous meningitis and other

similar organic conditions, show that catatonia itself is a common symptom in organic conditions as well as in functional ones. In the cases discussed where the motility picture has been in the nature of a catalepsy with more or less thought dissociation, there have been two sites of predilection for the lesion; one in the ventricular gray and one in the cortical or subcortical areas. Thus the personality integration appears to be disturbed at two levels, one involving the impulsive, instinctive, tonic, autonomic behavior and the other the intellectual elaborations with conscious volitional behavior. Cataleptic phenomena can occur in hypnosis when both the conscious, intellectual and instinctive and tonic functions may be held at abeyance. Blau and Averbuck [28] report the case of a 3-year old child who showed catalepsy for a while. It came of a defective family with intelligence quotients averaging about 50. The child had been raised in this unfavorable environment and when it was seen, no verbal or emotional contact could be made with it. After a short time in a normal environment, the child learned to talk and play with the other children and then revealed an intelligence quotient of 100. The catalepsy disappeared. A child of this age is forming its cortical patterns of behavior by normal maturation processes and by its experiences with the environment, both intellectually through its perceptive fields and emotionally in its contacts with other beings. This child may have shown cataleptic phenomena because of the temporary dissociation between its cortical activities and its instinctive and impulsive life which is the major part of the young child's existence until he has acquired his learned and social habits. Of course, constitutional factors due to the bad hereditary stock may also have contributed to the dissociated motility picture which was seen during the development of this child, but with a similar explanation since it occurred at the same time that the child showed a temporary intellectual retardation. However, if the dissociation was a constitutional or developmental one we must assume an impulse disturbance at a deeper level arising from the impersonal organic matrix. We thus must recognize that catalepsy as an impulse disturbance can be determined at different levels. When the impulse disturbance is organically determined, the motility disturbance is the most severe part of the picture and it comes near to a rigidity

of spasticity, with relatively less thought and affect dissociation and very little tendency to i olve the complex determined problems of the life experience. On the other hand, when the impulse disturbance arises from higher levels of affect or thinking, the involvement of the personality problems will be close and the motility picture will be used as an expression of the content. This brings us to the questions of catatonia in schizophrenia and reminds us of Dr. Meyer's [29] formulation in 1905, that in schizophrenia "there is much to be had in the study of the deterioration of the habits and the undermining of the instincts and their somatic components" and "that mind like any other function can demoralize and undermine itself and its organ and the entire biological economy." But we must add that there is also much to be had towards our ultimate more complete understanding of schizophrenia in the study of the pathological processes of any other disease entity in which the pathology is determinable and which has any symptoms comparable to schizophrenia.

Psychopathic personalities are the outcome of things that happen to the child's maturing brain as the integrating organ of the personality. There is an interference with the establishment of habit patterns as an expression of the integration between the instinctive, impulsive, affective, autonomic functions of the ventricular gray and basal ganglion and the intellectual, elaborative and judgment functions which are dependent upon the cortex and its long distance perceptors which keep it in touch with its environment. The proper integration of these two levels produces what we know as the character of the adult human being. We might also speak of the super-ego. A disturbance in the integration of these two levels by normal maturation process produces an intellectually normal, but emotionally immature psychopathic personality with emotional instability, poorly handled impulses, asocial judgment without a super-ego. The things that can happen are birth injuries to the subcortical areas, head traumas, encephalitis, possible constitutional defects of the same region and, finally, deprivation of the normal emotional, social experiences that come to the growing child in the pre-school age through the normal home life with close maternal, paternal, and sibling attachments and the solution of the Œdipus complex. It is important to correlate pathological and structural and clinical experience in arriving at a concept of such

a difficult problem as the psychopathic personality which would not be possible from the point of view of either the pathologist or clinician alone.

Perseverative, compulsive, obsessional disturbance in the impulsive and instinctive life that deals with the complexes of the poorly integrated personality are often brought into relief and sometimes seem to be primarily created by encephalitic-like illnesses in mature individuals and are associated with slight disturbances in motility at the neurological level. They are more resistive to psychotherapy but give us some new insight into the complex determined compulsions and obsessions.

Head traumas in adults, even when they produce a recognizable defect, are inclined finally to result in a reintegration of the whole personality at a somewhat more simple level of activity. We see that like the visual motor gestalt patterns, the gestalt of the whole personality is somewhat simplified and more primitive but the pattern features are exaggerated so that the constitutional coloring reveals itself sometimes with manic-like features and other times with schizoid or melancholic or hypochondriacal tendencies. The question of cortical localization is discussed briefly in terms of Schilder's concept of localization of disturbance of function rather than localization of function. Where special intellectual defects follow brain injuries or disease processes they tend to show similar integrative phenomena best expressed in terms of a reaction pattern of the whole personality working on a more simple level in which all fields of behavior are involved. In growing children there is a loss of the last acquired educational material and which is also exaggerated by the greatest loss in the last acquired function, phylogenetically, so that written spelling and reading suffer most. In an adult the responses of an aphasia will be determined by his personal complexes and constitutional reaction type. These two problems are mentioned merely as examples.

Finally, disease processes which involve the endothelial wall of the pre-capillary arterioles produce a nearly specific disturbance in the deeper layers of the cortex, the Purkinje layers of the cerebellum and the deeper nuclei of the brain. It is possible by the study of such cases clinically and pathologically to make some analysis of those factors which influence the periphery of the personality and tend to weaken the perception, memory and attention and concepts

of time from those factors which concern the core of the personality or the impulses, instincts, and autonomic rhythms and states of consciousness.

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DISCUSSION.

CHAIRMAN MEYER.—There are quite a number of points that one would like to reemphasize from the presentation that Dr. Bender has given us. The most important one to me is the statement that she feels that studies of this sort can be planned and done only by persons who have seen the whole of the material, the whole of the course and the whole of the data, which I think is a tremendously important and welcome assertion at a juncture when, unfortunately, the autopsies are usually left to the uninformed or, even worse, are deplorably neglected, under the excuse (I call it excuse) of the depression. Obviously, we are here confronted with a selection of cases that might have seemed to a good many almost prohibitive from the point of view of any helpful coordination between cerebral lesion and the findings of the case. It has, therefore, been particularly welcome that such a relatively difficult chapter of the organicist's domain should have been brought forth that shows such an interesting selection of function through what we might call the water-logging of the brain from the ventricles. Many of Dr. Bender's cases show disorders in locations favoring exposure to fluids and effects very much

less clearly attributable to any autonomous affection of the particular function of the system itself. On the other hand, Dr. Bender emphasizes the importance of the occurrence of psychobiological disturbances at definite times of life, in the form of deprivation phenomena, which shows the importance not only of a lesion but also of the fact of the setting of the person. We see in both the possibility of singling out data that are more definitely referable to functions still seen preserved in the decorticated animal. We further see also how special differential reactions can arise from diffuse changes in particular regions of cortex and subcortex, singling out conditions such as a perhaps unexpected separation of form disturbances and color disturbances in vision. We can very easily see how important it is that the worker be able to combine clinical experience and curiosity and the use thereof and a systematic thinking through of the data also in terms of structural facts. To have such acumen and thoroughness applied also to the more circumscribed focal lesions and to processes due to specific chemical reagents and controllable physiological and functional processes will always be one of the most fundamental ambitions and duties of psychiatry.

SUMMARY OF SYMPOSIUM.

By ADOLF MEYER, M. D.

What summing up can we make of this array of facts and of methods of their uses?

I had hoped that the participants in this symposium might be able to meet for a discussion aiming at a generally acceptable formulation of the common ground. This has not been practicable.

There is no doubt that we deal with a body of facts and methods that have a common ground and frame not completely handled by any one single "approach." There are many approaches used and at work. What we want to know is what the *facts as found* have in common and in what ways we may have to recast uncritical common-sense and uncritical tradition and also dogmatic science to obtain an unquestioned status for *critical common-sense* and our *systematized psychobiology, or ergasiology,* in the rank of the sciences.

All the participants deal with data which hang together factually and not merely through the prefix "psycho" present in psychology, psychopathology, psychoanalysis, minor and major psychiatry and psychobiology with their underlying physiology and physiopathology and biochemistry and structural study.

Do these data stand before us as facts of a specific type, calling for specific methods and treatment as a special discipline and chapter of science? How should we define its status?

In order to find a place in the curriculum, it must show that it does something that cannot readily be achieved by other means or in other terms, or in another course.

It looks as if many of the data and materials discussed had little to do with what most of us have been taught to expect in psychology. Yet they represent very concretely the experience of those who are interested as observers and workers in the nature and functioning of human beings in health and disease.

Fortunately, we can start from what we do and live with and live by in everyday life and experience. But for the lateness of the hour, I should be tempted to add a sample of the therapeutic interview and

what the relation between physician and patient aims to bring about. Such emphasis even at the expense of reiteration would seem justified, considering the tendency to criticize psychiatry for lack of therapeutic interest or therapeutic efficiency, mainly because what happens does not coincide with the ideas generally held with regard to disease and what is expected as therapy.

One thing I should like to emphasize at the outset. It would be wrong to assume that the salvation of psychiatric efficiency should come from but one or another particular avenue or innovation. What we most need is a liberalization concerning *the kinds of facts* we should be allowed to admit—and an open mind as to the fundamental conceptions, traditions and changes.

The varieties of data that have come before us in these very interesting presentations from Professor Miles, Dr. Malamud, Dr. Rado, Dr. Cobb, Dr. Whitehorn and Dr. Bender, all show a tremendous range of material that the psychiatrist has to be able to cope with. To me they indicate the presence of something which calls for a very definite change in our general philosophy concerning science at large and particularly our philosophy concerning the science dealing with man and its relation to " natural science."

It has been my fate and good fortune in dealing with human nature and functioning never to have been weaned of an interest in the daily life and in the daily observation by either theological or scientific dogmatism. I never was scared into supposing that because some things in our experience do not happen to be of the type of the studies in physics or the studies in chemistry, thereby they should be excluded from respect as dependable objects of scientific study or relegated to cold storage by " psycho-physical parallelism." It is perfectly true that when you deal with the facts of the psychobiological order, the ordinary life of the person and the way it organizes itself as functioning of the " he " or " she," you are dealing with things that you have got to learn to handle in their own particular ways and with the best sense of the present day. That means, to my mind, that in the first place we have to recognize that if we want to be competent and make headway in the evaluation of what to-day we prefer to call total-function or function of the person or the " he " or " she," we have to recognize that we are dealing in the first place with *biographic material*, as both Dr. Miles and Dr. Rado have particularly emphasized; and as

long as we deal with biographic material, we recognize that it is drawn from a whole lifetime and also has to serve a whole individual lifetime. This lifetime, in contrast to what the physicist and chemist and physiologist wants to handle, is not uniform existence, but one of changes; and change implies function as well as structure. We have to study the person as organism and not only as a mind, and the continual functional changes of the organism and the changing settings; and we do this with all the methods available, including also those we have from our training in history and in general human experience. It is in that setting that we then may insert any more detailed studies of a more technical analysis of the material.

I am convinced that a person ought not to go into psychiatry if not able to harmonize what he or she has learned from the study of drama and the study of novels and the study of any description of human material for its intrinsic cohesion, its adequacy of expression, its discrimination of what is adequately motivated and discrimination of where gaps occur—in other words, any person who has not some sense for that, ought to consider himself somewhat dwarfed or underdeveloped in a very important part of human training for the world of fact and the world of science, and particularly the world of medicine, *i. e.*, of pathology and therapy of living beings.

To assume that we can have a science of man with only a subjective psychology, or only of physics or chemistry, one which does not saturate itself with the available content, so as to become mature and also concise and effective, including also the historical and humanistic methods, would be simply an occasion for self-deceptions, a continuation of the profound error on the part of those who want to dictate arbitrarily what science shall and shall not include. *Biological science,* and particularly the biological science of man, will have to recognize frankly the historical character of its material and the critical sense trained in practice, which keeps us from belittling the developments and events of the individual. We have to learn to study our material as genetic-dynamic events of lifetimes, provided that we can give them the necessary dependability, conciseness and brevity and effectiveness of statement.

We think in terms of what our language illustrates in the form of sentence—a subject or noun or pronoun that is, and has, and does some thing or object.

Our subject is the person, body and soul, a live organism with the span of a life history as its setting, with events in terms of facts and factors that constitute our specific nature. We are integrates or units, the he's and she's requiring for an understanding and intelligent evaluation and management a vision of the facts and factors in terms of a historical, and at the same time natural history, formulation. These facts and factors constitute a flux with more or less consciousness, a hanging together in the form of activity, feeling, thought and language signs and behavior patterns forming our personality and nature, with an obligatory reference to a system of meanings to and in a person or groups of persons, whereas physiology and physics and chemistry deal with the nature and function of structures and parts without such obligatory reference. We study the subjects for the facts that become our concern, for the conditions under which they occur, the factors that enter into the developments, the way they work and the results, their variability and modifiability, and the bearing on the "better or worse" of the person or group of persons. With the urge to insist on the objectivity of all science, we speak of "experiments of nature," to be studied for the obvious events, factors and relations, and a search for the less obvious and perhaps neglected components of the patterns present or wanted in construction rather than merely descriptive work. It is this obligatory consideration as person and as group of persons that necessitates the term of "life history in the making" with the inclusion of our facts and part-facts in the pertinent settings. This requires a special training, not only for psychiatry, but for all those who work with human beings with scientific responsibility. The sets of developments we have to master present a wealth of facts that call for a freedom of methods and approaches held together by the specific nature and bearing of the facts and goals of personality-organization and personality-function, including the historical as well as the more narrowly genetic-dynamic natural history principles and concepts. Allowing the facts and the goals to determine the methods and approaches instead of letting approaches and methods narrow our vision of the facts and their settings brings us on the ground of critical pluralistic common-sense characteristic of the present-day attitude in our working with man and not only with parts. It may be the opportunity of another symposium to furnish

samples and principles of the working of psychobiology or ergasiology (behavior) that will throw light on the specific working and the relations to the other sciences.

So from the point of view of formulation, I would refer to Professor Miles's statement that he wants to go into detail where accuracy is possible, but in a setting not only of more technique but also the accuracy concerning the settings. The same comes to the front in what Dr. Whitehorn has given us. He does not feel satisfied with a blanket statement of depression or elation and has to study the actual sentiments with their changing settings in the family and hospital in the light of present, past and outlook. It is not so clear in Dr. Cobb's presentation how much and in what way he shapes his material for the Gestalt psychology or psychoanalysis, which in their way undoubtedly are very helpful systems but would have to figure in my mind only as part of that general presentation of dynamic-causal and genetic-dynamic interpretation and formulation of the data which we have to furnish in a form workable and practical in understanding and treating our problems and opportunities.

Evidently the formulation as to what is science depends to some extent on what we consider *facts*, and there I think we have to learn to be liberal. I would call fact anything the presence or absence of which as a factor in a formulated situation makes a difference. Anything that can become a factor, the presence or absence of which makes a difference in the way of effective results, becomes an obligatory concern in a scientific formulation and is by no means made more worthy through being given in terms of either theory or methods borrowed from the routine and theory of other sciences.

With that sort of definition of what might have to be accepted into any science and practice suited to our own facts and problems, we assume a very serious obligation. We must not dilute our liberal attitude by making it so general that we would be accused of superficiality, but poorly made up for by extraneous "completeness," but we must be sure that the masters of the consulted special sciences would accept their *data* as presenting the necessary conditions and reasonable indications for the use of their methods devised for special scientific researches. It is just as big a mistake to turn methods of superaccuracy on simple or ill-assorted problems as to want to use the high power lenses of the microscope on what

any sensible person can see with the naked eye. And it is nothing short of creating confusion to apply complex procedures of any kind to conditions which do not show kinship with the problems for which the procedures and the pertinent systems of facts and theory were developed and proved. Discernment in the problems and opportunities presented by the topics of concern, from whatever angle they may come, is what leads the psychiatrist and any investigator to equip himself with methods to be available when justified and promising, in contrast to the routinist use of all kinds of fashionable pursuits and techniques without grasp on the facts and problems to be studied. Hence my suspicion of any idolatry of "approaches" in contrast to a willingness and obligation first of all to live among the facts and to develop the best possible critical common-sense and scientific vision: a quasi-experimental and, where possible, actually experimental formulation of the facts and events, considered for their modifiability, in the setting of the person's life.

Unfortunately, when we come to human material and human facts, there are special exposures to subjective errors. I have not as yet found any person who does not in practically every personality description leave a mark of some bias or other that recurs in whatever he or she turns to. We have to take that subjectiveness as an unavoidable difficulty; but difficulty must not obstruct our way nor should it lead to camouflage by display of extraneous methods. Our whole American philosophy tells us to put the emphasis on what we are able to do and on a pragmatism not merely of license to try anything under the sun, but pragmatism which keeps a balance between imagination, theory, hypothesis and the results of actual test and performance: a reduction of the facts to an experiment of nature.

There is no doubt that we have no reason to consider ourselves at the end of our rope with regard to better uses of human resources in our own behalf and that of others. Most of the rules of management of man still are the product of analogical reasoning and plausibilities and generalities based on purely tradition-born conceptions. But we have plenty of opportunity for more specific observation and genuinely experimental data; and instead of using concepts borrowed from other science fields, we can acquire more and more frank and pointed and tested reformulation of the facts

as actually found, with as much opportunity for invention and discovery as in the less tradition-ridden other science fields.

We may still be in rather crude ways of formulating our data. The time-honored assumption that "mind" should be a simple animistic extrabiological addition to our animal "nature" instead of a product of integration and differentiation gives too naive a product of horizontal layering with a mental top-story that might be supposed to be able to lift itself off as the "soul" belonging only to a purely spiritual world.

No matter what *differences* of concepts and terms and facts and problems disclosed themselves in this symposium, there can be no doubt that we *become more and more interested in the facts according to their applicability*, and that we learn to pay more attention to the relation between concepts and facts in the attainment of goals. Instead of keeping ourselves and each other in a haze, we learn to know whereof we speak and wherewith we work.

We cease to be intimidated by the carping criticism and belittlement of our efforts to deal with our facts. We may be in the beginnings, but let us use the courage of using the facts and their sense as far as we can *prove* them. Let us proceed from the reasonably known to the mastery of the less known, not in a spirit of gamble and chance, but a confidence in disciplined and well oriented work. We need a certain courage to bring before the people who say, "Oh, this whole field is so vague, it is still immature," a fresh realization that it is older than most of the others; that it is difficult and that because of the rôle it plays with almost every pursuit of man, it should receive adequate effort and adequate encouragement and support.

There will be those who may be pessimistic concerning the issue of this symposium and there will be those who are over-optimistic. While it may not change any deeply rooted prejudices, it offers samples of concrete and suggestive material for worthwhile orientation and further discussion.

I want to thank you for your patience and I hope that the contributors to this symposium who have responded to my appeal receive your thanks as well as mine, because they have, to my mind, given us a very substantial survey of the actual range of facts and methods and a vision of order and usefulness. I want to thank them personally for their contributions.

GLIOSIS OF THE OCCIPITAL LOBES IN THE CHOREAS.*

By CHARLES DAVISON, M. D., New York.

While most observers agree that the pathologic process in choreas is essentially situated in the neostriatum, lesions have also been reported in the dentate nuclei, brachium conjunctivum, cerebellum and cortex, alone or in combination with a striatal pathology (Wilson, Horsley, Bonhoeffer, Lafora, Jelgersma, Dunlap, Davison, Goodhart and Shlionsky, and others). It is not the purpose of this presentation to describe in detail the histopathology of the usual sites involved in the choreas. This study will be limited chiefly to a gliotic process which was found in the white matter of the occipital lobes. Such observations, except for Terplan's report [1] in one of his cases of chorea (Case 2) have not hitherto been recorded. The material for this study was selected from fifteen cases of chorea, eight of which showed this lesion in the occipital lobe. For the material in four of these cases, I am indebted to Professor Spielmeyer.

REPORT OF CASES.

Case 1.—A man, age 67, was admitted to the *Psychiatrie und Nervenklinik*, Leipzig, with a history of choreic movements for a period of four years. A sister, 36 years old, also had chorea.

Neurologic Examination.—There were involuntary movements of the face and upper and lower extremities. The extremities were in a state of hypotonia. The patellar reflexes were diminished and the ankle jerks could not be elicited. The patient could barely walk and on attempting to do so he would fall backwards. Speech was markedly impaired. Early in the course of the disease the patient was irritable, euphoric and disoriented. Later he became apathetic and delirious. He died of a bronchopneumonia.

Clinical Diagnosis.—Huntington's chorea.

Gross Examination.—The large cerebral vessels showed evidences of arteriosclerosis. The heads of both caudates were markedly shrunken. There was a small area of softening in the putamen.

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Read at the New York Neurological Society and the Section of Neurology and Psychiatry of the Academy of Medicine, February 5, 1935.

Microscopic Examination.—There was a diffuse falling out of the small and large ganglion cells in the putamen. The glia cells of the neostriatum, predominantly the astrocytes, were increased in number. The ganglion cells of most cortical regions showed various pathologic changes. The glia cells of the cortex were increased in number. There was a marked gliosis in the white matter of the occipital lobe, the end-plate of Ammon's horn and the cerebellum. In the myelin sheath preparation areas of demyelinization could not be detected with the low power lens (Fig. 1). With higher power, however, there was slight destruction of the myelin sheaths in the white matter of the calcarine area. Occasional fatty products and evidences of disintegration were noted in the Scharlach preparation. In the Holzer preparation, part of the white matter of the occipital lobe was replaced by a dense glial process (Fig. 2A) consisting of a network of glial fibers and glia cells, mostly fibrillary astrocytes (Fig. 3). Occasional perivascular gliosis was also observed. The glial fibers had no particular arrangement. The blood vessels in this and other areas showed moderate arteriosclerotic changes, but there were no thrombosed vessels.

Comments.—Clinically, we were dealing with a case of Huntington's chorea. Histopathologically, in addition to involvement of the neostriatum, lesions were also found in the cerebellum and cortex. Of importance in this case was the gliosis in the white matter of the occipital lobe with very little destruction of the myelin sheaths.

Case 2.—F. C., a woman, age 32, had developed headaches, vomiting and difficulty in walking one year prior to her admission to the *Nervenanstalt* in Chemnitz. Her father had had Huntington's chorea.

Neurologic Examination.—There were involuntary choreiform movements of all the muscles of the body. The gait was unsteady. The patellar reflexes were increased. Mentally the patient was dull, apathetic, and responded little even to questioning.

Clinical Diagnosis.—Huntington's chorea.

Gross Examination.—There was a marked atrophy of the neostriatum.

Microscopic Examination.—There was falling out of the small and large ganglion cells of the caudate and putamen, the small nerve cells being more involved. The glia cells in these structures were increased in number. In the cortex, occasional falling out, pyknosis and homogenization of the ganglion cells were observed.

In the occipital lobe destruction of single nerve fibers was seen in the myelin sheath preparations. In the Scharlach preparations some of the perivascular spaces contained fat (Fig. 4). The main pathologic process, however, was detected in the Holzer stained sections. In these the white matter of the calcarine area was the seat of a gliotic process consisting of dense glia fibers, glia nuclei and fibrillary astrocytes. The blood vessels showed moderate arteriosclerotic changes. The ganglion cells of the occipital lobes were intact.

Comment.—This was a typical case of Huntington's chorea in which the pathologic process was situated essentially in the neostriatum. The gliosis of the white matter of the occipital lobe, especially the calcarine area, was similar to that observed in Case 1.

CASE 3.—B. A., a woman, age 38, was admitted to the *Pflegenanstalt* in Ennedingen with a history of difficulty in swallowing, involuntary movements of the muscles of the head and extremities and poor memory since the age of 30. The mother and a brother had Huntington's chorea.

Neurologic Examination.—There were choreiform movements of the muscles of the tongue, head, trunk and extremities, and coarse tremor of the hands. The patellar reflexes were increased; the abdominal reflexes could not be elicited. Mentally the patient was euphoric, irritable and unmanageable.

Clinical Diagnosis.—Huntington's chorea.

Gross Examination.—There was an old area of softening in the left hemisphere and a more recent hemorrhage in the right hemisphere. The globus pallidus was somewhat shrunken and the putamen markedly so.

Microscopic Examination.—The small and large ganglion cells of the putamen and the pallidal nerve cells stained poorly and showed pigment atrophy. There was an increase in the glia fibers and cells. The Purkinje cells of the cerebellum also showed pathologic changes. Except for the ganglion cells of the occipital lobes, there was an occasional falling out or ischemic type of cell change in the third lamina of the various cortical convolutions. In the occipital lobes no abnormality was observed in the myelin sheath preparation. In the Scharlach preparations occasional fat droplets were seen in the perivascular spaces. In the Holzer stained sections there was a gliotic process in the white matter of the calcarine area and the rest of the occipital lobes. This process was not as intense as in the previous two cases. The blood vessels showed moderate atherosclerotic changes.

Comment.—The gliotic process in this case was not as extensive as in the first two cases. The ganglion cells of the occipital lobes, in contrast to those of the third lamina in the other cortical convolutions, were not diseased.

CASE 4.—G. K., a woman, age 40, was admitted to the *Stadtische Nervenanstalt*, Chemnitz, with the history that at the age of 33 she had an attack of grippe soon followed by choreiform movements and four years later by an impediment in speech. The family history was negative for mental and nervous diseases.

Neurologic Examination.—There were constant, irregular, involuntary movements of the head, body and extremities. The speech was impaired. The pupils reacted sluggishly to light. The tongue was tremulous. The muscles were hypotonic. The patellar and Achilles reflexes were markedly exaggerated. At the beginning of the disease the patient was irritable, later she became depressed, and finally showed signs of dementia.

Clinical Diagnosis.—Chronic progressive chorea; Huntington's chorea (?).

Gross Examination.—There were no gross abnormalities except for a shrinkage of the putamen.

Microscopic Examination.—In the putamen there was disappearance of the ganglion cells, especially the small ones. Here the glia cells were increased in number and there was a perivascular gliosis. The cytoplasm of the ganglion cells of the dentate nuclei were homogeneous and the nuclei were pyknotic. The glia nuclei of this structure were increased in number. Some of the

ganglion cells of the third cortical layer disappeared and others showed sclerotic changes. There was diffuse increase in the glia cells of the central convolutions.

In the occipital lobe, destruction of single nerve fibers was found in the white matter. No pathologic changes were seen in the fat preparations. In the Holzer stained sections there was a gliosis of the white matter consisting of dense glia fibers which had a criss-cross arrangement. Large fiber forming astrocytes were found throughout, but most abundant at the border of the gliotic process. The blood vessels showed moderate arteriosclerotic changes.

Comment.—Clinically, this case was of interest because no other member of the family had this disease. The history of grippe, six months prior to the appearance of the involuntary movements, suggested the possibility of an encephalitis. Histopathologically, however, there was no evidence of an inflammatory process. The occipital lobe as in the previous three cases showed a gliotic process.

CASE 5.—N. B., a woman, age 35, was admitted to the Montefiore Hospital with a history of nervousness, irritability and of having dropped objects from her hand since the age of 32. A year later there appeared unsteadiness in gait and involuntary movements of all the extremities. One brother had had Huntington's chorea.

Neurologic Examination.—There were generalized choreiform movements. There was ptosis of the left eyelid. The right pupil was larger than the left, and reacted sluggishly to light. The deep reflexes were hyperactive. Except for a slight euphoria there were no psychic disturbances. One year before death there developed a severe secondary anemia.

Clinical Diagnosis.—Huntington's chorea.

Gross Examination.—The brain was small, anemic, and there was a moderate hydrocephalus. The caudate, putamen and pallidum were shrunken.

Microscopic Examination.—The small and large ganglion cells of the neostriatum were decreased in number; the remaining cells were poor in chromatin, shrunken or pyknotic. There was increase in glia cells and fibers. Less extensive pathologic changes were also found in the right globus pallidus, amygdaloid nuclei and granular layer of the cerebellum. Most of the ganglion cells of the third and fifth layers of the cortical convolutions also showed pathologic changes.

In the occipital lobe, in the myelin sheath preparations, the fibers of the white matter were intact. In the Scharlach preparation there were no fatty deposits in the white matter, but the ganglion cells, especially of the third and fifth layers, showed lipoid accumulations. In the Holzer stained sections there was an intense gliosis in the white matter consisting of glia fibers and a few fibrillary astrocytes.

Comment.—In addition to the marked involvement of the neostriatum and right globus pallidus, the cerebellum and the cortical convolutions also showed pathologic changes. The gliosis of the occipital lobe was as marked as in the first three cases.

CASE 6.—T. C., a man, age 62, was admitted to the Montefiore Hospital with a history that at 60 his gait had become unsteady, resembling that of a drunkard. Soon thereafter involuntary movements developed which involved first the lower extremities and later spread to the face, trunk and upper extremities. Two years later hoarseness, paroxysmal cough and nasal regurgitation developed. The family history was significant in that his mother had had peculiar involuntary movements of the extremities which appeared at the age of 70.

Neurologic examination disclosed ataxic gait; coarse, jerky, vermicular movements of all the extremities, with suggestive athetosis of the fingers, twisting movements of the trunk, facial grimacing and tremor; ptosis of the right eyelid; dilated right pupil with sluggish reaction to light of both pupils; hyperactive deep reflexes and absent abdominals. Mental examination revealed a euphoric and distractible patient whose speech was rambling. He was disoriented and his memory was poor for recent and remote events.

Clinical Diagnosis.—Huntington's chorea.

Gross Examination.—The frontal gyri were atropic, the lateral ventricles were dilated, and the left caudate and putamen were shrunken and had a lacunar appearance. The vessels at the base were slightly thickened.

Microscopic Examination.—The ganglion cells of the neostriatum showed pathologic changes, the smaller cells being more affected. There were iron pigment deposits in the lacunar spaces. In the cortex there was some demyelinization of the fibers of the frontal lobes with swelling and disintegration. In the third and fifth layers the ganglion cells were decreased, stained poorly and showed pathologic changes in the acute and chronic stages. The ganglion cells of the other convolutions showed similar changes. The vessels showed atherosclerotic changes.

In the occipital lobes the white matter in the myelin sheath preparation showed small areas of demyelinization. With higher power destruction of single fibers was seen. In the fat preparation fatty deposits in the ganglion cells and in the perivascular spaces of the cortex were seen. An occasional fat droplet in the white matter was also noted. In the Holzer stained sections there was gliosis of the white matter of the occipital lobe and other convolutions. This consisted of dense glia fibers and fibrillary astrocytes, most numerous at the border of the gliotic process. The vessels in this area showed moderate arteriosclerotic changes.

Comment.—This case is of interest in that the disease came on late in life and lasted two years. Another important feature is the presence apparently of this disease in the patient's mother who also developed these involuntary movements late in life (70). Histopathologically, this case showed extensive involvement of all the cortical convolutions as well as the gliosis of the occipital lobe.

CASE 7.—T. E., a woman, age 54, was admitted to the Montefiore Hospital with a history that at 53 she fell and soon afterward involuntary movements of the head and extremities developed. As far as could be ascertained, no other members of the family had had chorea or any other disorder of the nervous system.

Neurologic Examination.—There were generalized choreiform movements with a dystonic fragment in the left foot. The left pupil was larger than the right, but both reacted well to all stimuli. There was hypotonia of all the extremities and rebound phenomena and dysdiadochokinesis were present in both upper extremities. There was impairment of memory, disorientation as to time, place and person, poor insight into her condition, and hallucinations and delusions of persecution.

Clinical Diagnosis.—Chronic progressive chorea, arteriosclerotic.

Gross Examination.—The brain weighed 1000 grams. All the convolutions were atrophic. The vessels at the base showed atherosclerotic changes. The ventricles were dilated and the caudate and putamen were shrunken.

Microscopic Examination.—The caudate, putamen and globus pallidus were filled with calcified bodies and vessels. The vessels showed marked arteriosclerotic changes and were surrounded by areas of gliosis. The nerve cells, especially the small ganglion cells of the caudate and putamen, were decreased in number, poor in chromatin and had poorly stained nuclei. There was an increase in the glia cells. In the white matter and granular layers of the cerebellum there were many calcified vessels and numerous corpora amylacea. The Purkinje cells and the nerve cells of the dentate nuclei stained poorly, were shrunken and atrophic; some were completely destroyed. Similar changes were found in the various cortical convolutions.

In the occipital lobes there were small foci of demyelinization with destruction of single fibers (Fig. 5). In the fat preparations, the ganglion cells of the cortex showed fatty deposits. There was very little evidence of fatty products in the white matter. In the Holzer preparation, however, there was a gliosis of the white matter consisting of dense glia fibers and fibrillary astrocytes. There was proliferation of the vessels of the white matter. These had calcific deposits in their walls and showed marked arteriosclerotic changes (Fig. 6).

Comment.—This patient presented a classical picture of chorea with cerebellar signs. As far as could be determined, there was no family history of mental and nervous diseases. Pathologically, there was arteriosclerosis of the vessels of the entire cerebrospinal axis, most marked in the striatum and cerebellum. The white matter of the occipital lobes showed a dense area of gliosis and arteriosclerotic changes in the blood vessels.

CASE 8.*—M. L., a man, age 58, a diabetic, developed slight twitching movements of the right face which spread to the right arm, shoulder and right leg. There was no family history of chorea.

Neurologic examination disclosed constant twitching and grimacing of the right side of the face and choreiform movements of the right upper and lower extremities. The tendon reflexes on the right side were absent; the right abdominal reflexes were lively. The pupils were irregular, right larger than left, and reacted sluggishly to light.

* This case was previously reported by A. Weil from this hospital—"A Contribution to the Pathology of Hemichorea." Brain, March, 1928, Vol. 51.

Clinical Diagnosis.—Hemichorea, arteriosclerotic.

Gross Examination.—Atherosclerosis of the vessels at the base. The lateral ventricles were enlarged, left more than right. A cyst destroyed nearly the entire anterior third of the left caudate, the upper third of the anterior limb of the left internal capsule and the upper part of the anterior pole of the left putamen. The remaining part of the left striatum was reduced in size.

Microscopic Examination.—In the anterior part of the neostriatum numerous gitter-cells replaced the broken down tissue which was partly intermingled with connective tissue fibers. There was destruction of the small and large ganglion cells. The vessels showed atherosclerotic changes. There was no striking histologic changes in the cerebellum or cortical convolutions.

In the occipital lobe there were no appreciable changes in the myelin sheath and fat preparations. Occasional destruction of a single fiber was observed. In the Holzer preparation, however, there was definite gliosis of the white matter with the same histopathologic changes as in the previous cases.

Comment.—This case was one of hemichorea on an arteriosclerotic basis. Little as this case may have to do with Huntington's chorea, it is described here because of the incidental gliosis of the white matter of the occipital lobe.

General Comments.—Eight cases of chorea are presented. In addition to the lesions usually found in this disease, there was a gliosis of the white matter in the occipital lobe. Five of these cases (1, 2, 3, 5, and 6) belonged to the group of Huntington's chorea. In Case 4 there was no evidence that any other member of the family was afflicted with the same disease. The history of "grippe" six months prior to the appearance of the involuntary movements suggested the possibility of encephalitis. Histopathologically, however, there was no evidence of an inflammatory process within the nervous system. The chronic chorea in Case 7 was due to arteriosclerosis. Case 8 was a hemichorea caused by thrombosis of a branch of the anterior cerebral artery destroying part of the caudate and putamen and the upper third of the anterior limb of the internal capsule; the other cerebral vessels showed marked evidences of arteriosclerosis.

The pathologic process of interest in this presentation is the gliosis in the white matter of the occipital lobe. The intense gliosis, except for the first case where it was also found in the white matter of Ammon's horn and the cerebellum, was not observed in the white matter of the other convolutions. Is this gliosis a primary process or is it secondary to destruction of the myelin sheath? It is to be

emphasized that small areas of demyelinization of the white matter of the occipital lobes with slight destruction of single fibers was found in Cases 6 and 7. Single fiber destruction was also seen in the other cases (1, 2, and 4), but this was so insignificant that it could be disregarded as a contributory factor to the dense gliosis. In none of the cases was there evidence of extensive fatty deposits in the white matter. A slight amount was found only in Cases 1, 2, 3 and 6. The fatty products in Cases 1, 5 and 6 were more in abundance in the gray matter of the occipital lobes where there was involvement of the ganglion cells.

Extensive gliosis without appreciable destruction of myelin may occasionally be encountered in anoxemia and encephalitis. The gliosis observed in chronic inflammatory processes of the nervous system (encephalitides, general paralysis, etc.), in arteriosclerosis and in toxic degenerative diseases (multiple sclerosis, amyotrophic lateral sclerosis, etc.) is preceded and accompanied by myelin sheath destruction. The fact that the white matter in some of these cases was not demyelinated and did not show fatty products favors the idea that the gliosis was primary. The possibility, however, of this gliosis having been secondary to slight myelin sheath destruction must still be considered since the myelin disintegration in the white matter of the occipital lobe, unless very extensive, cannot be demonstrated easily because of the abundance of the fibers and their complicated intercrossing. The possibility that the unknown agent causing Huntington's chorea acts upon the white matter of the occipital lobe and stimulates the growth of the glia fibers without the induction of marked myelin sheath destruction must also be thought of. It is difficult, however, to explain the process in the two cases of arteriosclerosis (Cases 7 and 8), on the same basis. In these cases the gliosis may be due to the anemia produced by the partial occlusion of a small vessel without destroying the myelin. Whether the gliosis is a response to some chemical substance elaborated by the anoxemic area of perivascular tissue, or is a response to a deficient blood supply, cannot be answered. In this connection it is worth mentioning that meningitides and neoplastic disease of the meninges most likely produce a gliosis of the brain tissue as a result of occlusion of the subarachnoid and perivascular spaces. To make sure that this type of gliosis does not occur in normal middle aged or elderly persons, sections from the occipital

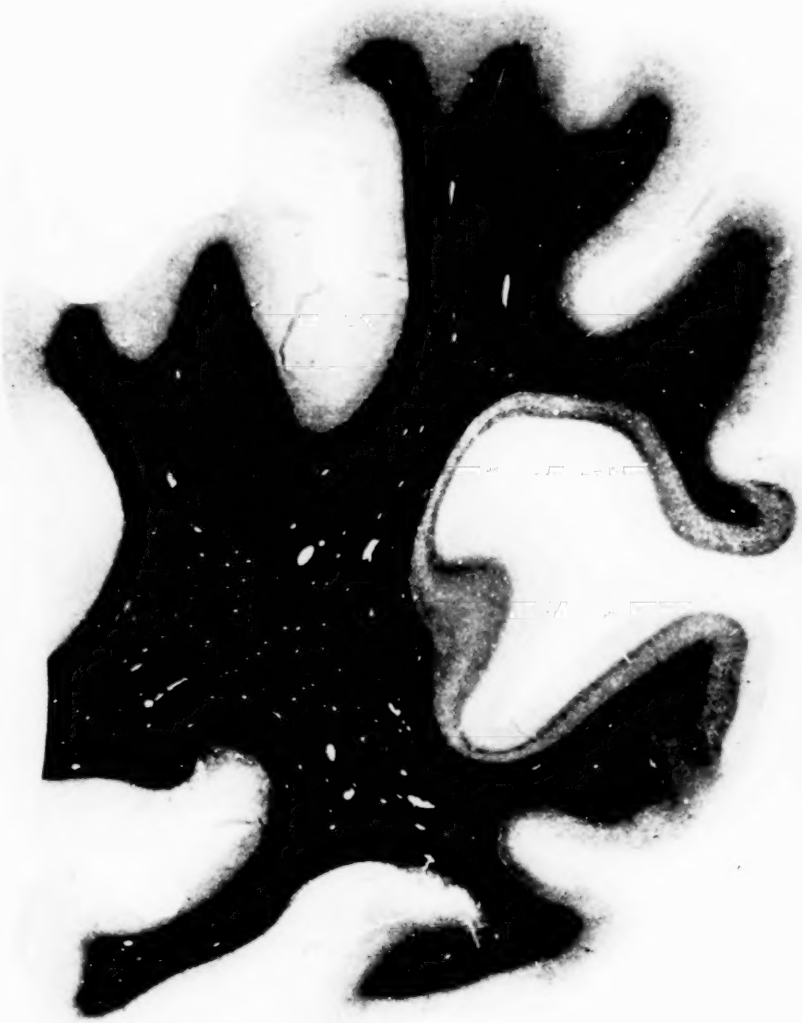


FIG. 1 (CASE 1).—Section through the occipital lobe stained for myelin sheath showing absence of demyelinization.

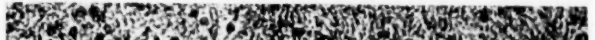


FIG. 2A (CASE 1).—Area of gliosis in the white matter of the occipital lobe. Compare with a normal section of the occipital lobe. Holzer stain.



FIG. 2B.—A normal section from an occipital lobe showing the absence of a gliotic process. Holzer stain.





section of the occipital lobe. Holzer stain.

stain.

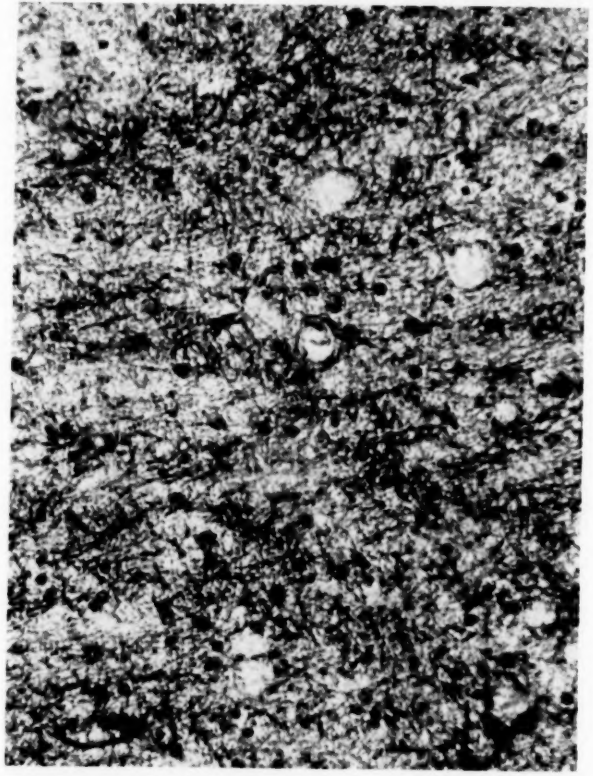


FIG. 3 (CASE 1).—Dense gliosis and fibrillary astrocytes in the white matter of the occipital lobe. Holzer stain. × 200.

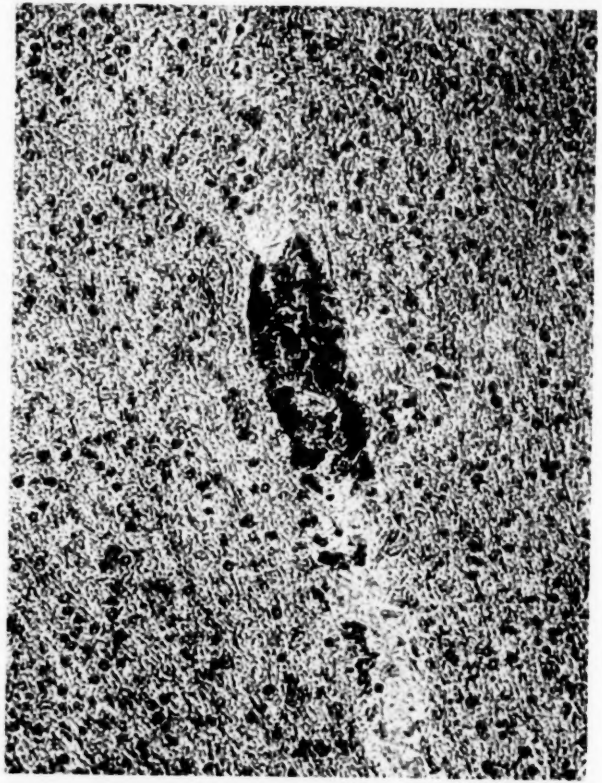


FIG. 4 (CASE 2).—Accumulation of fat in a vessel from the gliotic region of the occipital lobe. Scharlach stain. × 200.



FIG. 5 (CASE 7).—Area of demyelinization from the gliotic zone in the occipital lobe showing destruction of myelin. Myelin sheath stain. × 200.

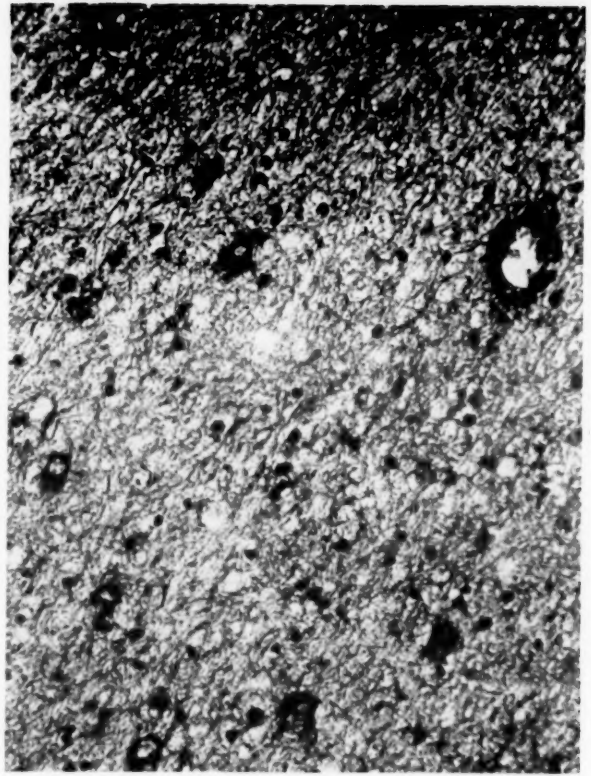


FIG. 6 (CASE 7).—Proliferation and arteriosclerosis of the vessels in the region of gliosis. Holzer stain. × 200.

lobes of normal individuals were studied by the same method. In none of these cases was this type of gliosis found (Fig. 2B).

The gliosis in the occipital lobes of these cases of chorea is of interest in that so far there are no cases recorded in the literature. Terplan [1] accidentally found this gliosis in one of his six cases of chorea. In his, as in our cases, there was very little destruction of the fibers of the white matter to account for this gliosis. Spielmeyer [2] found similar changes in the occipital lobe in a case of Huntington's chorea with a symptom-picture of Wilson's disease.

This gliosis may have some clinical significance. In such extensive involvement, some visual defects and visual hallucinations might be expected. A history of visual hallucinations was not obtained in any of these cases. Perimetric studies were not done on any of the cases reported in this paper, but an attempt has been made to do this in some of the living chorea patients now in the hospital. This, however, has been unsuccessful because of the involuntary movements of the head.

It should be emphasized that the gliosis of the white matter of the occipital lobes was not the cause of the involuntary movements. The latter was undoubtedly due to disease of the striatum.

Conclusion.—Fifteen cases of Huntington's and arteriosclerotic choreas were investigated. In eight of these, in addition to the usual neural structures involved in this disease, a dense gliosis was found in the white matter of the occipital lobe. Visual defects or hallucinations could not be demonstrated clinically. This type of gliosis was not observed in the white matter of the occipital lobes of normal individuals.

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gliotic zone in the occipital lobe. Myelin sheath stain. × 200.

PSYCHOSES WITH PERNICIOUS ANÆMIA.*

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In recent years, particularly since the discovery of the value of liver therapy, pernicious anæmia has attracted a great deal of attention and many articles have been written on the subject. There have, however, been comparatively few articles on the mental symptoms in pernicious anæmia and most of these have been within the past 10 years.

Addison,[1] in his original description of the disorder, speaks of the feeling of languor, the "indisposition to exertion" and states that toward the end "the debility becomes extreme—the patient can no longer rise from bed: the mind occasionally wanders; he falls into a prostrate and half-torpid state, and at length expires. . . . ." But little was added to Addison's original reference to mental symptoms for a number of years.

Cabot [2] in 1900 commented on the large number of symptoms referable to the nervous system, and in a study of 110 cases stated "psychic factors were prominent in three cases. In one of these the patient's symptoms changed from the time when it was her misfortune to witness the suicide of her son."

From that time on various articles have appeared, commenting, giving case records and discussing the origin of mental symptoms. Several recent articles have reviewed the literature fairly extensively so that it does not seem worth while to duplicate such efforts.

It may be mentioned, however, that in 1904 Pickett [3] presented several cases of pernicious anæmia with mental symptoms and discussed the type of disorder usually found, commenting on the occurrence of confusion, fabrications, delusions of persecution, hallucinations and occasional periods of excitement. He felt that the symptoms closely resembled those of Korsakoff's disease and would be grouped under Meynert's symptomatic amentias.

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In 1905 Langdon [4] presented a series of cases and noted as the prominent mental symptoms "loss of inhibition, peevishness and gradual mental deterioration varied however by controlled patience, good temper, etc., for longer or shorter intervals.

Camp [5] in 1912 described a case of pernicious anæmia with changes in the spinal cord and a mental state resembling paresis and felt that there was a similarity between the two diseases.

In 1913 Barrett [6] reported the autopsy findings in 15 cases of pernicious anæmia out of 650 autopsies on mental cases at the State Psychopathic Hospital of the University of Michigan. Barrett emphasized the fact that although a dementing process often occurred in the terminal stage of the disease, there frequently occurred paranoid conditions. He was particularly interested in these cases with a paranoid trend and felt that they showed the effect of psychogenic factors. He mentioned irritability, suspiciousness, delusions of persecution, auditory hallucinations, a strong emotional reaction to the ideas entertained and sometimes a picture resembling the Korsakoff's syndrome. In all but one of these cases he found a hereditary predisposition. On studying the cortex of the brain he found that eight out of nine cases examined showed distinct changes. He raised the question as to the etiological influence of pernicious anæmia in producing the paranoid picture and questioned whether pernicious anæmia was only an incidental occurrence. Since, however, he found the lesions of the nervous system to be diffuse and of a non-specific type, somewhat similar to those of chronic alcoholism, he did not feel it was possible to link up the mental picture with any specific anatomical lesion.

In 1919 Lurie [7] presented an elaborate study of four cases with necropsy findings, including careful histopathological studies. He also discussed the literature on the subject. He felt that the pathological changes in the brain were greater than those in the spinal cord. He concluded: "(1) There appears to be a fairly definite and constant relationship between the clinical symptoms and the pathologic changes. (2) The psychoses can be classed with the symptomatic psychoses of a toxic organic nature. The whole delusional formation is vague, unsystematized and loosely connected."

Jones and Raphael [8] in 1920 reported a case with symptoms resembling an arteriosclerotic psychoses and felt that there is often difficulty in differentiating between the two.

Darden and Hall [9] in 1922 recorded a case of pernicious anæmia with psychosis and gave a general discussion of the literature on the subject. Listing some 46 references, they felt that there was too much confusion on the subject to arrive at any definite conclusions but there was probably some toxic state, a direct result of the pernicious anæmia, which caused mental symptoms.

Woltman [10] in 1924 summed up the knowledge of the subject at that time, giving some 60 references. He reported the percentage of mental symptoms given by different writers as follows: Barrett 2.3 per cent, Weisenburg 40 per cent, Cabot 15 per cent. In a study of 1498 patients with pernicious anæmia at the Mayo Clinic 4 per cent showed "an outspoken psychosis," while "35.2 per cent showed lesser mental changes manifest even on casual observation."

He then discusses the theories as to the causation of mental symptoms and the contradictory views held by different writers as to the importance of hereditary predisposition and the toxic effect of the process itself. In Woltman's opinion the constitutional factor is of importance and although he found some relationship between mild confusional states and the intensity of the anæmia, this was not constant enough to satisfy him that this correlation was valid. In discussing the pathologic findings he concludes: "Just what influence these changes have in the production of a psychosis cannot be determined with certainty. They no doubt contribute to its development, yet they may be found in patients who have not had mental disturbances."

Hulett [11] in 1928 emphasized the medico-legal importance of pernicious anæmia with a report of a case showing a marked paranoid trend which resulted in an alteration of the will. He felt that the medical profession should be more aware of the mental abnormalities which occur in cases of pernicious anæmia, and where a question of responsibility or competency was raised, pernicious anæmia was a possible cause for declaring the patient incompetent and irresponsible.

Richardson [12] in 1929 reported the result of treatment in 67 cases of pernicious anæmia at the Massachusetts General Hospital. In these 67 cases there were two cases of a true psychosis. Both patients had delusions of persecution and hallucinations. Both patients recovered entirely from their psychosis under liver treat-

ment with a return of the blood count to normal. One case, following a lapse in diet, had a return of the psychosis, but this disappeared a second time under liver treatment. He comments on the fact that there are many other cases which are not true psychoses, but in which the patients are very uncooperative, stubborn and difficult. He says: "In many others it took the utmost tact and patience to get them started on the right track. Once the liver is started, however, there is no more difficulty; and the change from surly and disagreeable obstinacy to smiling optimism and cooperation is certainly as striking as the change to normal after treatment of the patient with hyperthyroidism or hypothyroidism."

Baker, Bordley and Longcope [13] in 1930 reported the results in 44 cases of pernicious anæmia. They found "psychic disturbances in eight."

Phillips [14] in 1931 reported three cases of pernicious anæmia with mental symptoms. He concluded: "There is ample evidence to show that mental disorder is liable to occur in the course of pernicious anæmia, as also in the secondary anæmias. The mental symptoms are secondary phenomena and when treated by modern methods they are curable just as the underlying condition is curable. A mental disorder may disappear before the blood is completely regenerated. It is of the greatest importance to bear in mind that the mental symptoms may be so pronounced as to obscure the original blood disease, hence a systematic examination of the blood should be undertaken in all cases where there is the least suspicion."

Young [15] in 1932 presented an analysis of the neurologic aspects in 515 patients with pernicious anæmia admitted to the Peter Bent Brigham Hospital. He found 4½ per cent of his cases showed "psychotic trends." "The mental state seemed to vary considerably and included acute deliriums, depressions, paranoid states and memory and disposition changes. It may be observed that the patient ill with pernicious anæmia is quite frequently a cantankerous, refractory patient. However, once the remission starts the change in disposition is often remarkable." Eighty-seven of his cases had a careful ophthalmoscopic examination and 10 showed evidence of retinal hemorrhage. "Eight of the ten were patients who suffered chiefly from psychotic manifestations. In this series it was observed that the patients with pernicious anæmia with a well-marked psychosis almost invariably had retinal hemorrhage."

Hackfield [16] in 1932 gives a review of some of the literature, discusses the causal relationship of the pernicious anæmia to the psychosis, presents seven case histories and concludes that there has been no proof of any definite etiological relationship between the pernicious anæmia and the psychosis. He feels that a study of cases treated with liver diet shows that those cases which recovered during liver treatment were of the affective type and that there was no demonstrated relationship between the change in the blood picture and the change in mental symptoms. He felt that there was no specific toxin that was the cause of the psychosis nor was there any specific histopathological lesion. He states: "We must, therefore, regard the psychosis as a separate entity which runs its natural course, the pernicious anæmia in some instances perhaps acting as the precipitating or aggravating factor. Treatment should be instituted which is directed towards the alleviation of the psychosis, and first in line stands attention to any impairment in general health by this pernicious anæmia or mal-nutrition, etc."

Wiltrakis [17] in 1932 reported 10 cases of pernicious anæmia at the Elgin State Hospital. "Of these cases four were diagnosed psychosis associated with somatic disease, pernicious anæmia; two manic-depressives, depressed type; two paranoid dementia præcox; one hebephrenic præcox; one psychosis associated with cerebral arteriosclerosis." Three cases are presented.

He concludes, "Mental symptoms, although known for many years, are frequently not considered in descriptions of the symptom complex of pernicious anæmia." A mild type with irritability and a more marked type consisting of a toxic state, together with a depressive or paranoid condition, are described. These groupings are not distinctly separate and are variable.

"In the 10 cases of pernicious anæmia in psychotic patients that have been treated during the past 18 months, one (diagnosed hebephrenic dementia præcox) improved considerably and was paroled home; two cases (both diagnosed psychosis with pernicious anæmia) have improved sufficiently to be paroled if this can be arranged. One died of a bladder infection; in the remaining six cases improvement in blood count has not been associated with mental improvement."

It is worth while to try to determine the incidence of psychoses with pernicious anæmia. Two methods are available. One is the study of autopsy reports. The other is the study of the diagnoses of the cases admitted to state hospitals.

The autopsy material of a state hospital represents a specially selected group of cases and is not a true index of the admission rate of each type of psychosis. It would seem, however, that cases of pernicious anæmia would have as high (if not higher) a percentage of autopsies as most other psychoses, particularly in the days before liver therapy when no treatment was available.

Barrett reported 15 cases of pernicious anæmia in 650 autopsies at the State Psychopathic Hospital at the University of Michigan. The Massachusetts state hospital system is fortunate in having a state pathologist who has a large series of autopsy reports from different state hospitals. In 3100 consecutive autopsies which were performed between July, 1914, and December, 1933, there were only 17 cases of pernicious anæmia reported. This would seem to indicate that pernicious anæmia does not occur frequently in mental disorders.

Taking up the second method of noting the incidence of pernicious anæmia in the new cases admitted, I have taken the figures of the Boston Psychopathic Hospital for the past 14 years, which represents the period of my own connection with this hospital. This gives a somewhat greater validity to the figures because I have personally checked over all of these diagnoses. During this 14-year period there have been approximately 26,000 cases admitted and only 22 of these cases were found to be suffering from pernicious anæmia. These findings indicate a still lesser incidence of pernicious anæmia in cases of mental disease admitted to our state hospital than do the autopsy reports. On the basis of the admissions, pernicious anæmia occurs only in 0.08 of 1 per cent of all admissions.

Of these cases histories summaries of but six can be given here on account of space limitations.

CASE 6.—The patient, a white male, 61 years of age, married, was admitted to the Boston Psychopathic Hospital May 19, 1926, from a general hospital where he had been receiving treatment for pernicious anæmia.

Family History.—Negative as far as known.

Personal History.—Little known of his early life. Graduated from grammar school. Worked in the laundry business for 20 years. Had done no work for

the past two years. He was married in 1907; marriage was happy though there were no children.

Medical History.—No previous illnesses known. He never had any other attack of mental disorder.

Personality.—Always pleasant, even tempered, kind, unselfish. Liked to stay at home and read the papers. Fond of baseball. Considered a very normal individual.

Onset of Present Illness.—In November, 1924, he complained of pain in his hands which were cold and blue. In September, 1925, his legs became weak. In October, 1925, he had two fainting spells. There was a question as to whether he might have had a slight cerebral hemorrhage. His weight dropped from 190 pounds to 158 pounds. He became somewhat irritable and high strung.

On May 4, 1926, he went to a general hospital on the advice of his physician. He was much depressed before entering but was not confused. Apparently he became confused at the time of admission to the general hospital. He was a patient there for 15 days. He showed a hemoglobin of 70 to 75, with a red cell count of 3,310,000. No free hydrochloric acid was found in the gastric analysis.

While in the general hospital the patient gradually became more confused and developed vague delusions of persecution so that he was transferred on May 19, 1926, to the Boston Psychopathic Hospital.

Mental Status.—The patient was restless, tried to get out of bed, was so weak that he could not stand. He seemed anxious and worried. He made vague complaints but did not appear to have any fixed delusions. Mainly he was apprehensive and felt that someone might harm him or his wife. He was disoriented for time and place, his memory and his intellectual functions were markedly impaired.

Physical Examination.—Showed a well developed, poorly nourished male whose skin was quite pale but showed no yellow tinge. The neurological examination showed comparatively little but he would not cooperate for some of the finer tests. His movements were somewhat spastic and there was poor coordination. There was slurring of test phrases. Blood showed a hemoglobin of 75; the red cell count was 2,560,000 and the white cell count 7500. Urine showed numerous casts.

Later in going over the patient neurologically Dr. Campbell remarked on the inability to carry out continuous movements, similar to that seen in cerebellar cases. He also remarked on the spasticity and incoordination. It was noted that the tongue was not that of a pernicious anæmia but rather the beefy tongue and red, dry throat of a pellagra.

The patient was placed on a high protein diet with yeast and Fowler's solution. He became progressively worse, went into coma and died June 9, 1926.

Autopsy showed the following findings:

Lesions of pernicious anæmia—1. Degeneration of posterior columns and lateral pyramidal tracts of spinal cord. 2. Slight hyperplasia of bone marrow. Extreme congestion and edema of lungs; old healed tuberculosis of lung

apices; old healed mitral and aortic endocarditis; coronary sclerosis; hypertrophy of prostate; edema of pia; chronic leptomeningitis; brain weight 1500 grams; Tigge's formula $8 \times 180 : 1440$; gain 60 grams.

CASE 9.—The patient was a white male, 32 years of age, single, admitted to the Boston Psychopathic Hospital August 8, 1929. He was referred by the out-patient department of the general hospital where he had previously received treatment for pernicious anæmia.

Family History.—Essentially negative.

Personal History.—Birth and early development normal. Graduated from grammar school at 15, repeating one grade. Worked steadily until 1925 when his present illness developed.

Medical History.—Had usual childhood diseases and pneumonia in 1922. No previous mental illness.

Personality.—Was a steady, diligent, conscientious individual, rather close-mouthed but with no abnormalities.

Onset of Present Illness.—During the summer of 1925 the patient felt run down. He quit work and went to the country to rest. He developed an abscess in his right ear which was opened. In September, 1925, he was weak, pale, complained of headache and dizziness. He was sent to a general hospital for three weeks where he received two blood transfusions and was sent home on a high protein diet. He improved considerably but was unable to work. During the summer of 1926 his symptoms returned and he developed paresthesias in the hands and feet together with marked weakness.

He was again admitted to the general hospital October 13, 1926. At that time it was noted that he would have spells at night when he felt people were outside his window trying to get into his room and injure him.

His hemoglobin was 85, his red cell count 3,620,000. He was placed on liver diet and after the first few days his mental symptoms improved so that at the time of his discharge, November 13, they had completely disappeared.

The patient remained at home throughout the year 1927 being followed by the out-patient department of the general hospital.

On September 3, 1928, he was again admitted to the general hospital. He showed unsystematized delusions of persecution, abnormal mood reaction and physically a moderate Babinski and diminished vibratory sense, especially in the left leg

On September 9, 1928, he was again discharged as slightly improved, being placed on a diet of 200 grams of liver daily with dilute hydrochloric acid.

On August 8, 1929, he complained of great weakness, said that he could hear the neighbors talking about him and yet could not see them, that they were calling him all sorts of bad names.

Mental Status.—Patient was quiet and cooperative. He was somewhat depressed, apprehensive and fearful. He claimed that the neighbors were tormenting him and he heard their voices calling him names and threatening him. He was in good contact with his surroundings. His memory was apparently intact. He showed some degree of insight, at times agreeing that his ideas were due to his physical condition but at other times he would argue at length to prove that they were real.

Physical Examination.—Patient was a short, spare man, well tanned and with no pallor. There was a bilateral Babinski. Vibration and position sense were diminished in both lower extremities. The blood showed a positive Wassermann. Slight incoordination of left arm and leg. There was a bilateral otitis media which was healed. The blood showed a hemoglobin of 89, red cell count 4,110,000 and white cell count 6500. Urine negative. Basal metabolism was minus 17.

The patient was placed on liver diet and given thyroid extract. His general condition improved. His basal metabolism became plus 1. The blood count was unchanged and he had good insight into his delusions. He was discharged October 5, 1929, with the statement that his mental symptoms had entirely disappeared.

He was readmitted October 25, 1929, with the statement from his brother that two days before he had again heard his neighbors accusing him and had become upset emotionally. The mental status showed the same symptoms as at the time of his first admission only rather more exaggerated. For a time his ideas of persecution seemed to increase. At the same time it was noted that his blood count was entirely normal.

There was a slow but distinct improvement in his mental condition, but he was discharged on January 21, 1930, to a state hospital.

A letter on May 13, 1932, states that he has shown no real change in his mental condition, has remained seclusive, suspicious, has auditory hallucinations but refuses to talk much about them. It was noted that on January 29, 1932, his hemoglobin had dropped to 50 and the red blood cells 2,550,000. He was changed at that time from liver diet to ventriculin and given ultra-violet treatment. He gained in weight and his blood condition improved so that his hemoglobin was 75 and red blood count 4,360,000. His mental condition, however, remained unchanged.

CASE 17.—The patient, a 57-year-old male, married, was admitted to the out-patient department of the Boston Psychopathic Hospital November 3, 1930, having been referred from the out-patient department of a general hospital, where it was felt that there was no physical basis for his complaints and he was regarded as a case of psychoneurosis.

Family History.—Unknown.

Personal History.—Nothing of importance elicited. No history of any serious illnesses; no previous mental breakdown. Finished high school and worked as a tailor since. Married about 35 years; two children.

Personality.—Very pleasant, sociable, full of energy. Fond of meeting persons. A very normal type of individual.

Onset of Present Illness.—About one year prior to admission, patient complained of a dragging, boring pain in the region of the manubrium extending out to both shoulder tips along the line of the clavicle. This pain gradually increased for several months, was constant during the day but never kept him awake at night. The family physician saw him about 10 months before admission, gave him some medicine which produced no relief. Becoming dissatisfied the patient went to the out-patient department of a general hospital

where a question of coronary sclerosis was considered, but it was finally decided that the symptoms had a psychic origin and he was referred to the out-patient department of the Boston Psychopathic Hospital on November 3, 1930.

At this time a general physical examination showed nothing of importance. Mentally the patient was alert. There was no question of any intellectual impairment. He was somewhat worried and concerned over his physical complaints but showed no other symptoms. An effort was made to find mental symptoms and patient was told to return in a week.

On his next visit he complained of a numbness in his left foot. There was some numbness in the right, but more in the left. He stated that it was present all the time and he felt as if he had stepped in a puddle of cold water. He was seen at weekly intervals and showed considerable variation in symptoms from week to week.

On February 26, 1931, his wife was interviewed. She stated that he had been more irritable for the past year. Since coming to the hospital she said that he had been much better. However, she felt that he was still far from his usual self in that he tended to stay by himself, did not wish to go out and became upset when visitors were present.

On March 24, 1931, he first complained of indigestion. About this time the patient started coming in once every two weeks instead of once a week.

On July 15, 1931, he complained of paresthesias of the fingers as well as the feet, but stated that the pains in his shoulders had disappeared.

Along in December, 1931, and January, 1932, the patient showed marked subjective improvement. He still was bothered a little with indigestion and with paresthesias of the hands and feet but he seemed quite optimistic, felt that he was very much better. This improvement lasted until March 15, 1932, when his symptoms all returned again and he felt that he was back where he was in the beginning.

On March 19, 1932, the patient was given a blood examination which showed a hemoglobin of 75, red cells 3,500,000, white cells 5600. Pernicious anæmia was suspected and he was referred back to the general hospital.

There it was noted on June 10, 1932, that the liver was definitely enlarged one inch below the costal margin, the reflexes were normal, the vibratory sense was markedly diminished and there was no free hydrochloric acid in the gastric fluid. He was diagnosed as having pernicious anæmia and given injections of liver extract. At the time of the first injection he was found to have a hemoglobin of 101 with a red count of 3,590,000. After a month's treatment the hemoglobin was 101, the red cells 4,840,000. He still complained of a pain in his chest, appeared worried about himself and said that he felt his distress was due to his nerves.

When seen on March 7, 1933, he was still receiving injections for his pernicious anæmia, the pain in his chest had disappeared, he still complained that his feet felt "frozen," but seemed in good spirits and not unduly concerned with his condition.

CASE 18.—The patient, a 46-year-old single female, was admitted February 8, 1935, from a general hospital where she had been for four days. She had

become wildly excited, and although given 3 c. c. of paraldehyde intramuscularly followed by 10 grains of sodium luminal intravenously, still later 6 c. c. of paraldehyde intramuscularly and 3 ounces of whiskey, and still later 10 grains of sodium luminal intravenously, she continued so noisy and disturbed that she had to be transferred.

Family History.—Negative as far as known.

Personal History.—Was born in Ireland. Birth and early development were presumably normal. Went to school until the age of 12. She came to the United States when about 20 and worked at various positions, usually at housework. She did not work for four years prior to admission. She had always been healthy and there had been no history of disease or injury prior to December, 1930.

Personality.—The account is not very satisfactory, but she was apparently a somewhat irritable, independent, stubborn and seclusive person.

Onset of Present Illness.—In December, 1930, she fell while at work and broke her arm. She returned to work after three months, but found that she tired easily and could not stand the work. Saw doctors frequently; complained of dyspnœa, lack of appetite, pain in the stomach of an indefinite character and weakness in the legs.

Early in 1934 she had several falls; her tongue became sore. On March 14, 1934, she was admitted to a general hospital where a diagnosis of pernicious anæmia was made. She received liver by mouth and by hypodermic injection. She was discharged after five weeks and continued to eat liver until June. At that time she developed dull, aching pains in the upper part of the abdomen and had attacks of vomiting and diarrhœa. She continued treatment of various sorts for the gastro-intestinal condition, and on December 31 she was operated on. The gall bladder was found to be full of stones and was removed. She was discharged from the hospital about January 11, 1935.

She remained at home for a while, but did not get along well and after having fallen and suffered contusions of the face and legs she was returned to the general hospital where after four days she became so excited and disturbed that she was transferred to the Boston Psychopathic Hospital.

Mental Status.—On admission the patient talked in an incoherent, rambling fashion and did not respond to questioning. She slept a great deal at first; this condition soon cleared up and she became quiet and cooperative. In mood she seemed a little euphoric, but there was considerable irritability beneath the surface. No delusions or hallucinations were elicited. She was in good contact with her surroundings. Her memory was apparently intact except that she did not seem to be clear concerning the incidents just prior to her admission and during her stay at the general hospital. She had some degree of insight for her condition. A special composite intelligence test gave a median mental age of 9 11/12 years with an intelligence quotient of 62. The scores spread rather widely from 16 years on vocabulary to 6 6/12 years on the Porteus mazes. It was felt that this test indicated intellectual deterioration.

Physical Examination.—The patient was well developed and fairly well nourished. The lungs were negative. The heart showed a soft, blowing

systolic murmur, otherwise normal. Blood pressure 125/80. Liver was palpable two fingers below the costal margin on deep inspiration. The pupils were normal. There was a slight rotary nystagmus to the right (possibly due to barbituric acid). The deep reflexes were equal and active except that the ankle jerks were not obtained. Gait and station were unsteady. There was poor coordination. Vibration sense was intact. There was some atrophy of the papillæ of the lateral margins of the tongue.

Examination of the blood showed a hemoglobin of 66; red cells 4,000,000; white cells 5500, 58 per cent being polymorphonuclear. The red blood cells showed slight variation in size with occasional large cells. The cell volume was .98. Gastric analysis showed absence of free hydrochloric acid after histamine. Urine examination was negative.

The patient was given an injection of 2 c. c. of liver extract on February 14, but developed a diffuse erythema. She was accordingly given Blaud's pills during the rest of her stay. She was discharged February 17. Her physical condition was essentially unchanged. It was felt that there was a poor discrimination of position sense of the toes and anesthesia to light touch and hypersensitiveness to pin prick on the hands and feet.

The patient was readmitted February 28, 1935. She had been home with relatives, but had become depressed and imagined that she had a cancer. At this time information was obtained from a niece that the patient had been in the habit of drinking one or two ounces of brandy once or twice every evening.

On admission the patient was restless and agitated, with pulse rate of 120. She vomited several times during the first 24 hours. No definite delusions or hallucinations were made out. She seemed clear and in good contact, but was quite apprehensive. She had a feeling that she might turn on the gas and get burned or forget to shut it off. She added: "I don't want to end my life, I pray I may have a happy ending."

The physical examination showed no new findings.

CASE 21.—The patient was a 33-year-old single female who was admitted to the Boston Psychopathic Hospital April 30, 1926. She was sent in from her home with a statement that she had been under treatment for pernicious anæmia at a general hospital and that she had become depressed and had attempted to jump from a third story window with suicidal attempt.

Family History.—The mother died of either pernicious anæmia or diabetes. It was impossible to be certain as to the diagnosis. One sister (Case 23) was diagnosed as pernicious anæmia and developed mental symptoms, requiring treatment in a hospital for mental diseases. One sister died of pernicious anæmia. One brother was said to have a condition similar to that of the patient, a psychosis and pernicious anæmia.

Personal History.—Birth and early development were normal as far as known. Measles was the only childhood disease which the patient had. There were no neurotic traits in childhood. She always did well in school, receiving a scholarship from high school and attending an academy for two and a half years, graduating with high honors. Following this she took a business

course; went to New York City and took a night course in Spanish. In 1922 she went to Cuba, remained there for two years and then returned to New York City where she continued in the employment of the same firm.

Personality.—Patient was said to have had a normal personality, to be of high intelligence, ambitious, and moderately fond of society, having many friends.

Onset of Present Illness.—While in Cuba, between 1922 and 1924, the patient had an unhappy love affair which disturbed her. She also complained some of difficulty in walking and weakness and consulted a Cuban physician who said that she was anæmic and gave her some type of treatment for this condition. She also complained of soreness of the tongue, a slight nausea and occasional vomiting, and of numbness and twitching of the hands. There was some complaint of paresthesia in the feet. This was said to have been cured by chiropractic and osteopathic treatment.

On her return to New York she was seen at a general hospital clinic which reported that she complained of dizziness and unsteadiness of gait. The physical examination at that time showed slight flattening of the left side of the face and hyperactive reflexes. Blood showed a hemoglobin of 95 per cent; the red cells were 3,800,000. The note from this hospital is as follows: "The question of encephalitis came up, but investigation by the ward senior revealed the story of a love affair and that the flattening of the face was due to a conscious effort to hide the missing teeth. He convinced her that she had nothing wrong with her and succeeded in having her walk with no gait irregularity; other symptoms were dispelled likewise." The patient was discharged from this hospital with the diagnosis of hysteria and anxiety neurosis. Shortly after this the patient went to another general hospital in New York City and was diagnosed as "functional ataxia, psychoneurosis and hysterical manifestations."

The patient came to Boston in April, 1925. She was said to be more irritable and nervous. In June, 1925, she was admitted to a general hospital where a diagnosis of pernicious anæmia, combined sclerosis of spinal cord and paranoia was made. She was placed on liver treatment. A note on July 11, 1925, stated: "She shows more definite mental changes than at first thought. There are definite mood swings and emotional instability. Apparently her family are anxious to do everything possible for her but she insists that they are working against her." She was discharged on October 17, 1925. She continued under liver treatment but gradually grew more tense and morose. Her gait became more spastic and coordination was quite poor.

On April 30, 1926, she was detected trying to jump out of a second story window. She was accordingly brought to the Boston Psychopathic Hospital by her brother.

Mental Status.—The patient was depressed and under considerable tension, but was cooperative and pleasant in her attitude toward the physicians and nurses. She talked freely about her condition, realized that she had some sort of weakness, but talked as if her gait difficulty was due to a weak will. She denied having attempted suicide and talked vaguely about only wanting to lower herself down to the ground and not jumping out of the window. Later

on she said that she was afraid of the woman with whom she lived, and that she could not get out of the door, therefore, she went out of the window.

No definite delusions or hallucinations were elicited. The patient felt that people noticed her and it seemed very likely that because of her abnormal gait persons would notice her. Her intellectual faculties were intact and she was in good contact with her surroundings.

Physical Examination.—There were hyperactive reflexes; double ankle clonus sustained on the left; a double Babinski; an unsteady, spastic gait; a positive Romberg; slight tremors of the outstretched fingers; fair co-ordination of the upper extremities, but poor of the lower extremities.

The blood showed a hemoglobin of 101 per cent (Sahli); red cells 5,600,000; white cells 8100; smear normal. Other laboratory tests were negative.

The patient was committed to a state hospital where she remained until August 10, 1926, and was then returned to New York since she was not a legal resident of Massachusetts.

The patient soon returned to Boston and entered a convalescent home, but finally went to live with her sister. There she became pregnant after having sex relations with her sister's step-son. She did not seem upset about her condition and talked about it to other persons in an indifferent manner. She would have temper tantrums at times and would take strong likes and dislikes toward individuals. In June, 1928, she was delivered of her child which died within a few days. The child was said to have had a leg deformity and to have been an idiot.

She was readmitted to the Boston Psychopathic Hospital September 20, 1928. Her mental status at this time showed very little. She apparently had been more irritable, self-centered and difficult to get along with, but conformed well to the hospital routine. Her mood was stable. There was no evidence of any delusions or hallucinations. An army alpha test gave her a score of 172 points.

The physical examination was similar to the previous one except that it was noted that there was a loss of vibration sense below the third lumbar segmental distribution and that position sense was impaired bilaterally. There was also a left facial paresis.

An examination of the blood showed a hemoglobin of 95 per cent (Sahli); red cells 5,800,000; white cells 7900; smear normal. Other laboratory tests were negative.

In March, 1929, she again returned to the general hospital clinic. In October, 1930, it was noted that she was working as a stenographer but that she complained of feeling very tired at the end of her day's work. She continued treatment and was last seen at the general hospital on February 19, 1935, at which time she had a hemoglobin of 118 per cent (Sahli); red cells 5,000,000. No particular mental symptoms were noted at that time.

CASE 23.—The patient was a 45-year-old white female, widowed, who was admitted to the Boston Psychopathic Hospital on June 9, 1930, with a statement that she heard accusatory voices and thought she was pregnant.

Family History.—The patient is the sister of Case 21. The mother died of either pernicious anæmia or diabetes. One sister died of pernicious anæmia; another sister, Case 21, had a psychosis and pernicious anæmia; one brother also had a psychosis and pernicious anæmia.

Personal History.—Birth and early development were normal. She finished the ninth grade at 15. Studied the violin for 10 years, later earning her living by playing and teaching the violin until she was married at 29. She married a widower. There were four pregnancies with three living children. She had pneumonia in 1920 and her appendix and gall bladder removed in 1929.

Personality.—The patient was said to have been a quiet, sociable, home-making type of person, contented with simple amusements and somewhat inclined to worry.

Onset of Present Illness.—In January, 1930, the patient was raped by her step-son. She contracted gonorrhea and was treated at a general hospital for it. In April, 1930, she was in a general hospital for three weeks because of phlebitis of the leg. About this time the patient commenced to hear accusatory voices and to imagine she was pregnant although assured by physicians that she was not.

Mental Status.—The patient was underactive and somewhat apathetic being retarded in her movements. She was quite slow in speech. She stated that she was unhappy and worried. She insisted that she was pregnant and claimed that she could feel fetal movements. She also claimed that her landlord had put her out of her house having been ordered to do so by President Hoover. She said that people were talking about her pregnant condition and saying what a bad person she was. She would not allow the nurses to give her ordinary care for fear they might contract some terrible disease from her. She stated that she heard the voice of God telling her that what she did was a sin. She was in good contact with her surroundings; her memory was intact and she showed a good grasp of general information.

Physical Examination.—Nothing of significance discovered.

The Wassermann tests of the blood and spinal fluid were negative. Smears for gonorrhea were negative. The blood showed a hemoglobin of 80. White blood cells 6100. No other examination of the blood was made.

The patient was committed on June 16, 1930, to the Boston State Hospital. There further examinations of the blood showed a typical picture of pernicious anæmia.

Discussion.

Twenty-two of the twenty-three cases (including one out-patient case) showed a definite psychosis. Cases 17 and 21 are interesting in that they illustrate how an early case of pernicious anæmia may be regarded as a psychoneurosis and various psychological factors held responsible for the patient's condition; whereas, an examination of the blood would presumably have revealed the correct diagnosis many months earlier.

It is probable that many cases of pernicious anæmia are overlooked in the incipient stage and emphasis should be laid upon such symptoms as numbness of the hands and feet, tingling or paresthesias of various sorts together with feelings of weakness and gastro-intestinal symptoms. Before such a case is diagnosed as psychoneurotic, pernicious anæmia should be ruled out.

Although 23 cases seem a small group, it seems worthwhile to see if any generalizations can be drawn from these cases.

Fifteen of the patients were males, eight were females. The average age was 50 years, the range being from 32 to 61. Five patients were single, 14 were married and four were widowed. An attempt was made to determine the age at the time of the onset of pernicious anæmia, the age at the time of onset of mental symptoms and the period which elapsed between the onset of pernicious anæmia and the development of mental symptoms. After going over these figures carefully it seems that they are open to considerable criticism. It is probable that pernicious anæmia exists at least one to two years before it is actually diagnosed, and in some of the cases reported it would appear that it had existed as long as five or six years. For this reason, attempts to work out correlations between the time when pernicious anæmia was diagnosed and the time of onset of mental symptoms would vary greatly depending whether an early or late diagnosis was made.

In the cases of this series pernicious anæmia apparently started anywhere from the ages of 29 to 59. Occasionally the mental symptoms were discovered and treated before it was realized the patient had pernicious anæmia as in Case 23. The apparent range of time between the onset of pernicious anæmia and the onset of mental symptoms varied from one day in two cases, less than a week in four more cases, up to a year or longer in six cases. There was, therefore, nothing consistent about this relationship.

The question as to how much the psychosis is due to pernicious anæmia, how much to constitutional factors may be partially decided by a study of the family history and the pre-psychotic personality. The family history was negative for mental disease in 16 cases, positive in five, and unknown in two. Cases 21 and 23 offer a most interesting combination of family history of pernicious anæmia and mental disease. In this record the mother died of either pernicious anæmia or diabetes, two sisters and one

brother had pernicious anæmia with psychosis, one sister died of pernicious anæmia, and the son of one sister (Case 23) had a psychosis diagnosed as manic-depressive psychosis.

With regard to the pre-psychotic personality, 16 patients were listed as having a normal personality, five as having an unstable personality, and two as unknown. It is recognized that a predisposition to mental disease may exist in a personality which appears outwardly quite normal and that no final conclusions can be drawn from the figures just given. However, one may say that a study of the family history and the pre-psychotic personality of these cases gives very little evidence of a constitutional or hereditary factor as playing an important part in the production of the mental disorder.

As regards previous attacks of mental disease one case, Case 1, had had two previous attacks of what was apparently a catatonic stupor with good recovery. Case 5 had an attack of chorea at the time of the menopause and Case 10 had been delirious during an attack of rheumatic fever. Case 15 had had an attack of depression lasting about 18 months with recovery which occurred eight years before his admission to the psychopathic hospital.

Concerning the type of mental picture shown in these 23 cases, it may be said that there were very few clear-cut reaction types. Most of the cases seemed to show some elements of an organic condition and few of them would have been classified as clear-cut cases of the functional types of mental disorder.

Since the case histories cannot be presented because of lack of space, it seems desirable to present some conclusions as to the mental symptoms shown in the different cases. In checking over the material, I have felt that 11 cases showed essentially the picture of an organic confusion; three cases the picture of a depression; two cases the picture of a manic excitement; four cases showed a schizophrenic type of reaction, although in two of these there was a suggestion of the organic; two cases showed the mixed picture of a schizo-affective reaction; and one case was called a psychoneurosis. As bearing out the idea of an organic picture it is significant that eight of these cases died, four within one week or less of the time of their admission at the Boston Psychopathic Hospital; two in 15 days or less; and two in three months or less. The clear-cut paranoid type of picture was noticeably absent.

There have been reports by various writers of mental disorders coming on with pernicious anæmia, clearing up as soon as the patient was put on liver treatment, recurring again when the patient stopped liver treatment, and again disappearing with further liver treatment. On the basis of this it has been argued that the mental picture is due primarily to the pernicious anæmia. This has been checked up in the series of 23 cases. It is of interest that 13 cases were receiving liver treatment at the time of their admission. This might at first seem to show that liver treatment was of no value in clearing up mental symptoms. If, however, these cases are studied a little more closely it will be found that several of the cases had been getting liver for only a few days prior to admission and that other cases had been getting the liver treatment irregularly.

In going over this point with Dr. William P. Murphy he suggested that one should check up the blood count at the time of admission rather than the question as to whether or not the patient had had liver treatment. In the past it has been stated that liver treatment did not prevent the further development of neurologic symptoms, but it is now generally agreed that adequate liver treatment will prevent such development and that in cases which are developing further neurologic symptoms an examination of the blood will show that anæmia still exists and that the patient is not receiving sufficient liver. For this reason the initial blood count of all of the cases admitted was tabulated. In six cases the count was over 5,000,000; in two other cases it was over 4,000,000; in all but one of these cases the patient was on liver treatment. It would appear, therefore, that in six of the 23 cases the patient's blood count was quite normal and that in two more it was over 4,000,000. The other cases showed definite anæmia, being below 1,000,000 in one case and below 2,000,000 in four other cases. A study of these figures does not allow us to draw any satisfactory conclusions. Apparently some cases do develop a psychosis while under liver treatment and with a red blood cell count of over 5,000,000.

From the study of the 23 cases admitted to the Boston Psychopathic Hospital we may conclude that there is no specific type of mental picture which occurs in pernicious anæmia; that mental disease may come on while the patient is getting liver treatment and has a normal blood count; and that improvement of the mental

condition does not necessarily correlate with improvement of the anæmia.

There seems no doubt that in severe cases of pernicious anæmia an organic delirium may be produced which is not specific and resembles the organic deliria of any other serious physical disorder. With this one exception there appears to be no specific type of psychosis due to pernicious anæmia—rather pernicious anæmia like any other severe debilitating disease may throw a certain stress and strain upon the personality so that it breaks down in a variety of ways.

In an attempt to study the matter from a different angle I have gone through a number of the case records at the Peter Bent Brigham Hospital and interviewed a number of patients. Dr. William P. Murphy has been kind enough to place his records at my disposal and to allow me to interview patients attending his clinic. There are many difficulties in evaluating such material. The out-patient and hospital records of a general hospital have little reference to the personality and mental symptoms of the patient so that there is no comparison of such material with the records of a psychopathic hospital.

Reading through the records it soon became evident that it was impossible to determine the incidence of mental symptoms on the basis of records. Most records make no mention of the mental state of the patient and those which do are often so vague that they cannot be evaluated.

Undoubtedly any serious physical illness will produce some degree of personality change and the classical symptoms of lessened strength, easy fatigability, and lack of interest arising from a decrease of energy output may be classed under such headings. In fact in some of the cases recorded, the complaints of paresthesias of the feet and hands and difficulty in locomotion have been called hysterical and thus become evidence of mental symptoms. This is illustrated nicely by Cases 17 and 21. It appears, therefore, that one cannot obtain satisfactory material by the routine reading of general hospital records.

The next thing attempted was to pick out cases which had been thought to show mental symptoms and to study them from the hospital records or whenever possible to interview the patients. It was possible to interview some 12 cases and to go over the

records of some 23 more cases. Several points come out from such a study.

First the age of the patients. In the 35 cases studied one was over 80 years of age, seven were over 70 years of age, seven were over 60 years of age, and five were over 50 years of age. When we realize that the incidence of mental disease increases directly in proportion to age, the factor of age seems to be of a good deal of significance. For example, one patient interviewed developed her first symptoms of pernicious anæmia at the age of 81. On examining this patient I found the typical picture of a mild senile dementia. She told of occasional spells when she would become confused when out walking and have difficulty in getting back. She was living in a home for old persons, had no close friends or relatives, and was rather frail physically. She spoke of a feeling of mild depression saying "Here I am, no good for anything. I wish they had let me go when I was so near gone." While pernicious anæmia may contribute something to the mental picture in this case it can hardly be regarded as the important cause of the patient's mental condition—it has merely added one more burden to a senile dementia.

A second finding from these cases is the presence of many other physical conditions which would explain the mental states more adequately than would the pernicious anæmia. Cerebral arteriosclerosis, senility, neurosyphilis, diabetes and various other physical diseases were present in many of these cases. It does not seem reasonable to speak of such cases as having a psychosis due to pernicious anæmia.

Still another cause of the mental symptoms is the numerous environmental difficulties which these patients encounter. In a number of the cases there was a history of death of a relative or friend, loss of money or loss of position often because of the physical effects of the pernicious anæmia. In such cases the emotional situations appear to be the causes of mental symptoms and the pernicious anæmia plays only an indirect rôle as when it causes the weakness or ataxia by virtue of which the individual is unable to carry on at his job.

In an endeavor to study the type of personality that has pernicious anæmia, I have been able to personally examine a number of cases at Dr. Murphy's clinic. I have also watched these patients

unobserved when they come to the clinic, and noted their general attitude and reactions. In general there seems no outstanding personality reactions in this group. There seems to be the same variation which one finds in any large group of clinic patients—some cheerful, some depressed, some exceedingly grateful for their treatment, others cantankerous and fault-finding. I do not see evidence of any specific personality change accompanying the pernicious anæmia. It is only fair to add that these were all patients who were undergoing liver treatment. However, some of the patients had been away from treatment for some time so that the blood count had dropped to quite a marked degree.

One explanation which Dr. Murphy has made as to the attitude of these patients is that pernicious anæmia commonly comes in individuals who have had very little sickness. These individuals are either middle-aged or older. The result is, they do not take kindly to any serious chronic sickness and find it difficult to accept it. This, however, is no different from what one would find in the same individual if he were afflicted with any other type of serious chronic disease.

In closing I wish to give credit to Dr. Robert E. Britt for help in reviewing the literature and checking over the records at the Boston Psychopathic Hospital and to Dr. William P. Murphy and his associates for the use of the records of the Peter Bent Brigham Hospital, for permission to interview patients and for many helpful suggestions and criticisms.

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DISCUSSION.

Dr. Henry Tiebout (Greenwich, Conn.).—I think we are indebted to Dr. Bowman for bringing up this matter of the relationship between pernicious anemia and mental illness. All of us are naturally interested in the question whether the new treatment of pernicious anemia is going to have any effect on the continuation of the mental symptoms or whether perhaps it is going to prevent them from developing.

In looking over the literature and the reports which Dr. Bowman has made, one notes a remarkable uniformity of opinion that there is nothing specific about the psychosis associated with pernicious anemia and that it presents various types. In the various relationships I think we see four possibilities. In the first place, the pernicious anemia may be really nothing

but a so-called precipitating factor, and we may think of it in terms of what it does to the individual's capacity to function.

In the second place, there is a possibility that the illness may progress far enough to produce a toxic condition, and, therefore, the patient develops mental symptoms of a delirious nature.

The third possibility is that there is a specific type of psychosis associated with pernicious anemia similar to the one we thought typified paresis.

Then the fourth possibility is that pernicious anemia may be an incidental finding in a case of mental illness.

Now it seems to me that Dr. Bowman has shown that the first, second and fourth possibilities exist. He has apparently ruled out, as have the others who have studied the subject, the possibility of there being a specific type of mental illness associated with pernicious anemia. He has pointed out that in 11 of 23 cases there is a toxic factor which may account for the mental symptoms. He also has said some of the cases seem to present a definite reaction to illness in terms of depression, schizophrenia, and so on. It is not clear whether any of the cases can be considered merely incidental.

I was disappointed in Dr. Bowman's paper that he didn't date his cases, because I was interested in finding out whether there was any difference in the mental picture before and after the institution of the liver treatment. In looking over the case abstracts, I got a feeling that perhaps there were more organic cases earlier in the series. I would like to ask Dr. Bowman whether or not he would verify that from his own knowledge of the available material.

Dr. A. B. Magnus (Chicago).—Dr. Bowman's presentation recalls to my mind a case referred to the Chicago Psychiatric Institute by Dr. Peter Bassoe, because of a psychosis thought to be associated with pernicious anemia. The woman came to the Presbyterian Hospital from a hospital in St. Paul where a similar diagnosis was apparently made although toxic psychosis without the anemia was considered. She was, therefore, under a liver therapy regimen.

On admission her mental state wavered from one of confusion, restlessness and apprehensiveness to an occasional psychomotor retardation with brief intervals of apparent lucidity. Usually there was marked uncertainty and hesitancy, and at times she was delusional and would cry. In short, her mental symptoms were very similar to those described by the essayist.

The laboratory blood revealed a red cell count of about 4,000,000, although on one occasion it was found to be 2,200,000. The modified blood picture was doubtless the result of the liver therapy. The neurologic examination gave meager and inconclusive results; the deep reflexes were bilaterally sluggish.

She was a married woman, 44 years of age, with a marked pallor, no children, with a history of four miscarriages and negative serology. The hemoglobin ranged from 40 to 50 per cent. Physically there were no pathological findings save a systolic pressure of 160. A diagnosis of pernicious anemia with psychosis was made.

The liver therapy was continued and there was no appreciable change in her mental trend. After a lapse of several weeks dilute hydrochloric acid in doses of one dram, three times a day with each meal, was added. Shortly afterwards a notable change in the clinical picture followed progressively. For a check-up as to whether the improvement was the result of the added acid therapy the latter was discontinued while the liver therapy was maintained. The mental symptoms soon recurred nearly approximating those originally observed but not as pronounced. We, therefore, resorted to the hydrochloric acid addition again. Gradually the symptoms began to recede, eventually leading to an uneventful recovery which has continued to date.

Dr. L. E. Schneider (Warren, Pa.).—In the classification of the cases, do you pay any attention to or investigate the neurological findings in the presence or absence of neurological changes?

Dr. Lloyd H. Ziegler (Albany, N. Y.).—Dr. Bowman's presentation impressed me very much because it deals with a psychopathological subject worthy of much study. I should like to add very briefly three of my experiences to his.

A patient with well defined pernicious anemia and subacute combined degeneration, with pyramidal tract signs and objective sensory loss in all extremities had a psychosis in which he believed that electricity was being used on his arms, legs and genitals by someone in a city over a thousand miles away. He was very antagonistic to those about him and emotionally unstable. All forms of therapy used, including liver, failed to help him.

Another patient, at the onset of her primary anemia and cord lesion, had an astasia-abasia after some worries over the possibility of losing her property. (More severe cord lesions, with very little gait disturbance, have often been seen.) The anemia progressed rapidly and she showed rather early a well marked delirium which was gradually replaced by stupor and coma several weeks before her death. All therapy, including liver, failed. Unfortunately, an autopsy was not obtained.

The third experience was with a hypomanic with polycythemia and a dull, mildly depressed patient with pernicious anemia. The bloods of the two matched. A transfusion from the polycythemic patient to the anemic one did not help the psychic state of either.

Cause and effect are not the simple matters that they may seem to be, when one works with patients such as Dr. Bowman has reported.

Dr. Paul Schilder (New York City).—I think that the fact that pernicious anemia starts so often under the picture of neurosis is of very great interest and it seems that among these pictures of astasia-abasia are rather common. One of my first psychiatric experiences belongs in this category.

Now the great question is, what is organic of this so-called neurotic picture? Spinocerebellar disorders of gait and psychogenic astasia may have a similar appearance and the question is whether some of these cases are merely organic and are merely wrongly diagnosed.

The other possibility is, and I have case material to prove that, that we have slight organic symptoms and that the individual reactions to the slight organic change are such that an astasia-abasia results which is at the same time psychogenic and organic.

This leads immediately to the second point which seems to be of more general importance, and that is that every organic disease which affects the central nervous system, and pernicious anemia does, changes the attitudes of the individual so that the individual is sensitized toward psychogenic problems. Many neurotic conflicts come out in a much clearer way when there is a toxic or organic disease of the central nervous system.

We have observed in Bellevue Hospital one case which was particularly interesting in this respect. The disease started with weakness, diagnosed as psychogenic in another hospital. But she was also very deeply disappointed in her ambitions to become a writer. She had conflicts with her family. She developed fantastic lying and invented many fantastic stories. She recovered from the weakness. The diagnosis of pernicious anemia had not been made at that time. Later on, she developed a severe picture of pernicious anemia with spinal signs, and in this severe picture of pernicious anemia she started to say her parents were not her real parents, and that she had been kidnapped in early childhood as a Russian princess, and she stuck to this idea for a very long time, until in close relation to liver therapy she gave up her delusional ideas. The spinal picture persisted.

Psychic symptoms are reactions to the organic symptoms of pernicious anemia. As Dr. Ziegler has mentioned, the individual tries in the beginning very often to deny the organic symptoms. When the symptoms become too obvious they are experienced as the result of hostile experiences from outside sources and paranoic pictures appear. They are a reaction to the organic symptom which is modified by the organic and toxic change in the brain.

Finally, as Dr. Bowman has pointed out, in the last stages we find severe toxic pictures with the organic type of confusion. But when we take all these things together, we must say there is something characteristic in it. I must confess since I believe firmly in a deep identity between organism and psychological factors, I always expect that a definite organic disease of the organism involving the central nervous system must be connected with some definite attitudes of the personality, and I do think that in deeper analysis we find at least far-going hints that there may be perhaps a specificity of the psychological picture in pernicious anemia although we do not know at the present time the details.

Dr. Karl M. Bowman (Boston).—In answer to Dr. Tiebout's question as to whether cases showing the organic syndrome developed earlier in the disease. I would state that it does not seem possible to draw any conclusions from the material available.

Dr. Magnus reported a very interesting correlation between the administration of hydrochloric acid and the alleviation of mental symptoms. In one of the cases of this series the patient was getting hydrochloric acid as well

as liver but still went on to develop mental symptoms. Dr. Magnus' findings are well worth checking up on further cases.

In answer to the question concerning the neurologic findings, I would say that many of the cases showed some neurologic findings, some showed none at all; there was every conceivable variation.

Both Dr. Ziegler and Dr. Schilder raised the question of whether the symptoms were produced psychologically or organically. I think this is a point of great interest and worthy of considerable discussion. Personally, I feel that the diagnosis of hysteria or functional disease is made too frequently and that it is made incorrectly more often by the general hospital than by the psychiatric clinic. There has been so much propaganda about psychiatry and the psychological factors in disease that I believe the general practitioner is more willing at times to dismiss a case as psychogenic than he would have done previously. I feel there is a definite danger in overemphasizing the psychological aspects.

My own experience is that if the medical man is unable to understand a case he is inclined to say that he can find no physical explanation for it, therefore, it must be psychological. The psychiatrist, on the other hand, examines the patient and says that he can find no psychological basis for the symptoms, therefore, they must be due to some obscure organic factor which the medical man is not clever enough to discover. I do not know which one of us is right, but I feel certain that there is the tendency on the part of each of us to throw over into the province of the other any case which he does not understand.

As Dr. Schilder has said, the symptoms are often the result of both physiologic and psychologic factors. Obviously the fact that an individual has an organic disease does not render him immune to mental conflicts and psychological factors. Hence, in most of these cases I would assume that it was a mixture of both rather than a question of either one exclusively.

I believe that Dr. Schilder is correct in saying that there must be some very specific change in the personality in any specific type of nervous disease, and I would go further and would not limit myself to diseases of the nervous system. I would feel that any severe physical disease must have a rather specific effect upon the personality, but because of the differences in personalities this specific effect will not always give exactly the same symptoms. One might use the common example of alcohol which has the specific effect of depressing the higher controlling and inhibiting centers in the brain and yet which gives rise to very different reactions in different individuals. In the series of cases presented there are some which seem to show a typical organic picture, but aside from these cases there is very little evidence of a specific mental picture due to a definite organic disease. As I see it, we have a great variety of reactions covering almost the whole field of psychiatry. All of these cases have pernicious anemia. In my opinion, in some cases the pernicious anemia is the direct and important cause of the mental symptoms; in other cases it is a precipitating factor or a partial cause of the symptoms, while in still other cases it is merely incidental and has no important relationship to the symptoms.

THE PROBLEM OF RESEARCH IN MENTAL HOSPITALS.*

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There is a current feeling among medical men that there is comparatively little scientific research being done in psychiatry. It may seem to us as psychiatrists that a great deal of work is done in our field, yet when one compares the total amount of research in psychiatry with other branches of medicine, one can see the difference very readily. The necessity for more investigation in the field of mental disease is finding its reflection in the interest which has been taken in psychiatry recently by our great research foundations, but the amount of help given for research in psychiatry has been, on the whole, quite small. This is probably due to the fact that although it is quite true that psychiatrists are able to construct and manage large institutions, there are but few among them who command the respect of the scientific world as investigators. There is no faith among those who sponsor research in various universities and foundations that psychiatrists are particularly competent to do investigative work, and for this reason the grants that are given to psychiatry are small and temporary in nature. This is reflected in the fact that as yet we have no large, permanent endowments such as one finds in the fields of tuberculosis and cancer. The necessity for more knowledge and investigation in psychiatry is realized, not only by the medical men, but also by our leading sociologists and economists who cannot help but be appalled by the huge economic costs for the care of the mentally sick, with the expenses mounting higher every year. One cannot say that psychiatrists are not aware of the fact that so little scientific work is done in their field.

In the early years of the century small psychiatric clinics were established in connection with a few universities in the hope that such clinics, largely modelled on European patterns, would become

* Read at the meeting of the Massachusetts Psychiatric Society, April 9, 1935.

centers of psychiatric research. Special provisions were made for inclusion of such clinics in the general teaching scheme of medical schools in the hope that there would be sufficient stimulation from the basic sciences for solid scientific work. It was felt that state hospitals were too isolated and too unprepared to assume the complex functions of research and teaching in spite of the obvious advantage that they have in their size, the stability of their population, the low cost of maintenance, etc. Such university clinics have exerted a very important influence on American psychiatry, although it is hard to estimate their complete value as there are still only a few of them and they have existed only a comparatively short period of time. Already, however, they have demonstrated their usefulness in teaching psychiatry to medical students and they have at least partially succeeded in bringing psychiatry into the field of general medicine. They have helped to establish the liaison between psychiatry and medicine at large, and they have probably done a great deal in educating the general practitioner. One cannot overlook their importance in community education and general diffusion of the knowledge of psychiatry through our universities. They have done a great service by attracting to them the best teachers of clinical psychiatry and they have thus stimulated the interest of young medical graduates and given them an opportunity for training in this field. At these centers young graduates were also able to learn, not only clinical psychiatry, but also some of the general principles and methods involved in research and the necessary medico-biological techniques. One must admit, however, that the contributions of such clinics to our sum total of knowledge of psychiatry has been rather limited; although it is too early to pass judgment because one cannot expect great advances in the short time that the clinics have existed. Large as the contributions of university psychiatric clinics have been, it seems quite obvious that research should not be confined to a few such clinics and for this reason state hospitals must take an important if not a leading part in this field. There has been a tremendous expansion of the state hospital system in America so that now we have more beds in our state hospitals for mental diseases than in hospitals for all other diseases and specialties combined. As Dr. James V. May has pointed out, state hospitals with their wealth of clinical material and the stable population group ought to be ideal places for investigation and research.

The growth of the state hospitals in America has been primarily physical in nature, and it commanded all the genius and ability of our leading psychiatrists to organize satisfactory provisions for housing, medical care and economic administration of large institutions. Remarkable as our progress has been in erecting large institutions for the care of the mentally sick, there was comparatively little progress in psychiatry as such except in related fields, in connection with the difficult problems of delinquency, dependency, criminology, child guidance and various types of social maladjustment. Here and there a state hospital has been able to develop facilities for research but such hospitals are the exception rather than the rule and as yet we have no central planning for scientific work in our mental hospitals. I am not blind to the fact that our state hospitals have not yet caught up with the demand for proper housing of their patients. We still do not have a sufficient number of beds for the mentally sick and there are but few states where anything like satisfactory conditions prevail as to building, equipment and personnel.

I shall make an attempt now to analyze some of the difficulties which hospitals face in doing investigative work. As I said before, the central efforts in psychiatry have been confined to the problems of new construction to make room for more patients and to make adequate provisions for their medical care. The demand for administrators in psychiatry was so large that some of our best psychiatrists have gone into the field of administration, leaving behind them the fields of investigation and research. Following the World War there was such a great demand for psychiatrists in the various fields that some of our best men, trained for solid scientific work, were called to the fields of administration, teaching, court work, private practice, child guidance, etc. Because of a great need for hospital executives a current impression has developed in our state hospitals that the only career possible for a promising young psychiatrist is in the field of administration with the understanding that if one wishes to do investigative work one may do so without very much hope of advancement or progress. There has been an attempt to correct this condition by having pathologists and clinical directors on the staffs of the mental hospitals, but in some of our best state hospitals these positions have not been filled, ostensibly on the grounds of economy. The administrative problems are still

looked upon as the most important functions of a state hospital and they carry with them the greatest amount of weight and responsibility. Yet when one looks at the general hospitals one finds a startling difference. Although the administrative problems there are even more complex than they are in state hospitals, the administrators do not take the responsibility for the medical work of the hospital. They do their work quietly, unobtrusively and only add to the efficient running of the medical work of the hospital, limiting themselves largely to the problems of the physical plant and the personnel. In the state hospital we find an anomalous situation where the chief administrator is also the chief of the medical staff. This might be an ideal arrangement if one be as good an administrator as psychiatrist but an efficient combination of the two is usually quite hard to find, and for this reason either one or the other aspect of the work frequently suffers. It is not that I believe that our hospitals should not train future executives. What I do believe is that they should also take the responsibility for training personnel in the scientific aspects of psychiatry.

The other serious handicap in the state hospital is the medical personnel. It is usually so small that it can barely serve the medical needs of the hospital population, not to speak of the intensive psychotherapeutic work which patients in mental hospitals require. This can be best expressed in the words of a young psychiatrist who told me that all his time is occupied in looking at "schizophrenic tonsils." For this reason the young graduate with a scientific mind keeps away from the portals of a mental hospital. We still have a large number of hospitals to which physicians go to "make a living" and where all their interest in psychiatry stops at five o'clock. Such psychiatrists prepare themselves for nebulous careers in general practice or the more lucrative fields of nose and throat work. The very best of such people do accomplish their purpose, while the less courageous and adventurous remain in state hospitals, constantly bemoaning the fact that for one reason or another, they were not able to go into their favorite specialty; and they let their disappointment show itself by being disinterested, skeptical and scornful of psychiatry to which they are wedded by necessity and not by choice. They thus consider themselves failures because they were not able to achieve success in the hypothetical paradise of general practice. They remain on the permanent staff

of the state hospital and determine the quality of psychiatric work in the institution. Such a group, for reasons which we have indicated above, cannot possibly have any faith, interest, not to speak of enthusiasm in psychiatry even though they may be quite conscientious in discharging their routine responsibilities.

It is rather interesting that the most pessimistic attitude in psychiatry is found among state hospital physicians, and this holds true for a great majority of state hospitals from Winnipeg to Tennessee. This solid backbone of the medical staffs of most of our state hospitals is so difficult to deal with that when a new administrator, interested in scientific psychiatry, comes to the hospital, he is forced to dispense with the services of such a staff even though administratively they may be quite satisfactory. There is no question but that a man who will do scientific work in a state hospital is welcome and that every state hospital likes to demonstrate the fact that there is no real hostility toward scientific work; but such a man usually finds himself working quite alone, he is frequently criticized by the other members of the staff because he may not have routine responsibilities and no matter how excellent his scientific work may be, his program in the hospital system is definitely limited. What is more difficult is the fact that the man who does scientific work, does it in splendid isolation without much sympathy and understanding from his solid, substantial colleagues and although he himself may be given an opportunity for work, there is very little hope of building up a regular division or a closely-knit group, as the state hospitals have not wakened up yet to their responsibilities for doing investigative work. Research nowadays requires the effort of more than one man no matter how brilliant he may be. It is now largely a cooperative matter and the most gratifying results have been obtained where there was close cooperation with the mutual exchange of ideas of several people as it was in the case of Banting and McLeod in the discovery of insulin. Research requires a certain amount of imagination, it requires a type of personality different from that adapted to routine work and our state hospitals are not yet prepared to meet such a person on his own level. The rigid regimentation of the hospital life, the inflexibility of its system, the centralization of authority in one person may be excellent means of efficient running of an institution; but, on the other hand, they cannot help but contribute to curbing of initiative

and a sterility of thought which are such unfortunate findings in our hospitals. It seems that although medicine has succeeded in making mental hospitals medical institutions it has sold its birthright for a mess of pottage by having its medical heads become primarily administrators with only secondary interest in the progress of psychiatry which after all should have been their only excuse for taking up the responsibilities of hospital directorships. If psychiatry is called the stepchild of medicine, we must confess that it has done very little to be called its favorite child.

In spite of the gloomy picture which I have painted there are signs of awakening of interest in the investigative fields in some of our best state hospitals, and although such trends are still quite sporadic they are a good indication of what state hospitals might do, and perhaps the time will come when they will be just as important scientifically as they have been in some of the European countries. Here and there one finds a state hospital with a broad training and scientific program which would do credit to any scientific institution. One often hears the cry that appropriations for state hospitals come from hard-boiled legislators who can see the value of a new barn but who cannot appreciate the worth of an additional chemist or physiologist on its staff. It is assumed that just because state hospitals are institutions supported by public funds, no money can be spent for such frills as research. One has to point out that without an accumulation of real knowledge about mental disease the state would be the loser by the constantly mounting costs for the care of the mentally sick. The education of the public and legislators cannot begin too soon with acceptance of the fact that a certain share of public funds must be spent for research. This is already a fact in some of our more progressive states although it is still done on a very modest scale. Even if state hospitals were given money for investigation, most of them would not know what to do with it. We still have no standards for the organization of research in mental hospitals. Here and there one finds an almost ideal situation but such places are few and far between. They are accidental rather than usual and they are still too much of an unusual and irregular occurrence to exercise a profound influence on research in psychiatry. Whereas states spare no effort in preparing elaborate plans for buildings, construction, etc., I am not aware of any state that has a well-organized program

and plans for research in its institutions. It is curious that while the future executives of state hospitals are being carefully trained in the economic administration of their future dependencies they receive no training and apparently develop no sense of responsibility for advancing the progress of the specialty to which they belong. For this reason it is only too often that research is still a matter of caprice of the individual executive and he has to justify himself in doing what ought to be his primary responsibility. One must remember that research in state hospitals is in such a sorry state that the curtailment of investigative work is looked upon with approval by some as an evidence of brilliant economy on the part of the new executive.

There is no royal road to heaven in research and one cannot expect that we shall see a sudden sprouting of scientific interest in the staffs of our hospitals unless the men who do the work in these hospitals are themselves interested in solving some of the problems in their every-day work. Before asking for any help from the outside, the mental hospitals must clean their own house, and the first practical problem is a choice of personnel. State hospitals must stop being places of retreat for young physicians who prepare themselves for nebulous careers in obstetrics or proctology. It is not too much to ask that the medical staffs of our hospitals should be selected from young physicians whose primary interest is in psychiatry. Mental hospitals must assume definite responsibility in training young physicians and retaining only those who demonstrate a real interest in their work. Training of younger members of the staff should follow a well-organized and planned scheme with a special person responsible for the training of the new members rather than the blunt exposure of the neophyte in psychiatry to the vast clinical material on a sink or swim plan.

There has been a definite change in our economic structure for the past 15 years which cannot fail but find its reflection in the philosophy of medical practice. The ideal of rugged individualism is being questioned in medicine as everywhere else, and the new generation of physicians does not find that the work in connection with large social groups is as distasteful as it is for the general practitioners. There is no question that medicine is becoming organized in the service of the state as are other fields of social endeavor. There is a good deal of idealism in our younger

generation of physicians and there are many of them who would be interested in psychiatry if they could be assured that they would have a chance to do the same type of scientific work which they could count on in other fields of medicine. State hospitals should become conscious of this opportunity which is provided for them by the new economic and social situation and avail themselves of the younger physicians and psychiatrists who are coming into the field. A great deal of psychiatric research in Europe has been done in the mental hospitals which are not connected with university clinics. In our hospitals we must have leadership and one should attempt to retain psychiatrists with demonstrated ability for investigation and research rather than force them to go out into other fields as has been the tendency in our state hospital work.

There has been a tendency recently to bring in people from other fields with the hope that by their special techniques they may be able to solve some of our difficult problems. It is doubtful whether research in psychiatry can be delegated to specialists in other fields with the expectation that they may be able to discover something which psychiatrists themselves have not been able to. It should be clearly understood that without a solid background in clinical psychiatry, investigators in other fields will not be able to benefit psychiatry. Thus far, the most important contributions to psychiatry were made by clinicians beginning with Bayle and Kraepelin and finishing with Freud and Wagner von Jauregg. Attempts have recently been made to bring biochemistry, physiology and endocrinology into the field of psychiatry and whenever this was done without the close correlation and understanding of the clinical aspects of the work and without a close tieup with the clinician the results have been quite sterile. Psychiatry is still a descriptive science, clinical acumen is still the most important thing and the research problems will have to be confined for a long time to verification or denial of certain hunches and theories of the sensitive and imaginative clinical psychiatrist.

I regret if I have been somewhat pessimistic in my account, and if I have condensed the colors it is only because I feel very strongly that there ought to be a more definite shift in interest in the direction of research than we have thus far. The private mental hospitals have done more than their share in the early years of American psychiatry and we owe to them the first interest in re-

search in our specialty. With the changing conditions in private institutions it is not fair to expect them to carry the heavy financial responsibilities involved in research, and it is not more than right to assume that public institutions should assume this responsibility. It is most fortunate that the National Committee for Mental Hygiene which has done so much excellent work in disseminating information about psychiatry has now committed itself definitely to a program of stimulation of research and has made an excellent beginning in this field. In spite of such efforts I doubt very much whether a great deal can be done unless we adopt some of the more forceful methods such as were used in the improvement of medical education by the American Medical Association. Perhaps we ought to have a rigid rating of hospitals on a basis of scientific work and this can be done in connection with a certificate of specialization in psychiatry which is being instituted now. In spite of the tremendous difficulties which beset the organization of research in our mental hospitals I feel that there is enough leadership, enthusiasm and ability among psychiatrists to devote themselves to such a task, as I am firmly convinced that nobody but psychiatrists themselves can make significant contributions to their own field.

The author expresses his grateful appreciation to Dr. Arthur P. Noyes, superintendent of the hospital, for looking over the manuscript, and for many valuable suggestions.

ON THE PREVENTION OF LOSS OF WEIGHT IN THE PSYCHOSES.*

By ISIDORE FINKELMAN, M. D., Elgin, Ill.

One of the problems that confronts the physician who treats mental disorders is how to prevent the loss of weight that occurs in acute mental cases. In manic-depressive psychosis the body weight often steadily diminishes during the course of the illness so that death due to exhaustion is a not infrequent termination of the disorder.[1] Schizophrenics, too, are commonly poorly nourished. At the beginning of the psychosis patients with schizophrenia often diminish in weight to an alarming degree. Patients with catatonic excitement present the most difficult problem of nutrition in the schizophrenic group. Clinical evidence of dehydration is present, such as dry skin, a dry parched tongue and a foul mouth odor. Frequently these patients refuse food and have to be tube-fed. In the manic phase of manic-depressive psychosis and in catatonic excitement the diminution of weight may continue despite all efforts to maintain the nutrition. This may be due to the hyperactivity presented by these patients. However, I have also observed a diminution in weight in the inactive schizophrenic in the acute stage. This somtimes occurs despite an apparently sufficient food intake.

Bamford [2] reports cases of acute schizophrenia in which there was a progressive loss of weight with no sign of physical disease. " In all cases, whether stupor or excitement predominates, the rapid and profound physical wasting constitutes a very prominent feature of the disease. Unless this be attributed to severe metabolic disturbances of endocrine origin, it is difficult to find a satisfactory cause. Throughout the course of the illness, one looks in vain for symptoms and physical signs of any associated bodily disease to account for the emaciation."

As a working hypothesis it seems reasonable to assume that the factor responsible for the diminution in weight is a disturbance in metabolism, particularly that of water.

* From the Elgin State Hospital and the Department of Nervous and Mental Diseases, Northwestern University Medical School.

E. R. Squibb and Sons supplied the hydrating solution used in this experiment.

Kugelmass[3] succeeded in preventing the initial loss of weight in the new-born by the administration of a hydrating solution. It occurred to me to use the hydrating solution, as developed by Kugelmass, in the treatment of dehydration and prevention of loss of weight in acute psychotic patients. The solution consists of 6 per cent gelatin (ph 6.2), 3 per cent dextrose and 0.5 per cent sodium chloride. The gelatin is said to hydrate blood and tissue and to raise body heat by virtue of its specific dynamic action. The evidence adduced by Kugelmass for the rational use of a hydrating solution in the new-born is strikingly applicable in the acute psychoses. Particularly in catatonic dementia præcox. Thus, he says that the clinically characteristic behavior after birth, somnolence, stupor, lethargy and anorexia are manifestations of shock precipitated not only by traumatization but by an increased activity of the sympathetic nervous system which has the effect of lessening the volume of plasma. Although it has not been shown that the stupor, apathy and lethargy observed in schizophrenia are due to the same causes that operate in the new-born, the treatment of the schizophrenic reaction by the same means is worthy of trial.

The hydrating solution was not used as a source of calories but rather to favor the retention of water in the tissues. The hydrating properties of gelatin are well known. The solution has a caloric value of 12 calories to the ounce.

Procedure.

The experiment was conducted on the receiving service for women, and the observations noted were chiefly clinical. The laboratory work was limited to a study of the refractometric index and viscosity of the blood. Patients, who upon admission were found to be emaciated and to have a dry skin, parched tongue, and other signs of dehydration, were selected for treatment with the hydrating solution. In this way a series of 12 cases was gradually accumulated. Eight patients, who were admitted at about the same time and who answered the same clinical description, were used as controls. These patients were kept on the same diet that the treated cases were given but the hydrating solution was not added to their meals. Eighteen ounces of the solution were given to each patient daily, six ounces with each meal. Several of the patients were given three ounces of the solution six times daily. No change was made

in the patient's usual institutional diet. The solution was added to the regular tube feeding of the patients who refused food. The patients were kept on the solution for lengths of time varying from two to several months. Refractometric indexes and viscosity readings on the serum were determined daily for five days before treatment, five days after treatment, and then thereafter three times a week during treatment. A Hess viscosimeter for blood and a Bausch and Lomb refractometer were used. Blood pressure, pulse rate, and temperature were determined on each patient daily.

Results.

The weight results are summarized in the following tables:

TABLE I.

Cases on Treatment.

Patient.	Weight before treatment.	Weight after treatment.	Duration of treatment (months).	Diagnosis.
E. H.	78	118	4	Drug addict
L. O.	92	96	4	Manic-depressive, depressed.
R. S.	99	90	3	Involutional melancholia.
M. A.	95	115	5	Dementia præcox, hebephrenic.
S. M.	95	105	2	Dementia præcox, catatonic.
M. O.	95	105	2	Manic-depressive, manic.
A. T.	108	117	4	Dementia præcox, catatonic.
B. D.	107	106	2	Dementia præcox, catatonic.
E. M.	110	132	3	Dementia præcox, undertermined.
E. G.	98	118	2	Dementia præcox, catatonic.
L. S.	100	108	2	Dementia præcox, catatonic.
B. P.	104	114	3	Dementia præcox, catatonic.

TABLE II.

CONTROL CASES.

Patient.	Admission weight.	Weight three months later.	Diagnosis.
S. H.	97	85	Dementia præcox, hebephrenic.
V. A.	98	99	Dementia præcox, hebephrenic.
A. S.	141	109	Involutional melancholia.
C. R.	97	91	Manic-depressive, mixed.
C. K.	121	111	Dementia præcox, undetermined.
E. S.	103	97	Manic-depressive, manic.
V. E.	120	107	Dementia præcox, catatonic.
A. L.	115	87	Dementia præcox, catatonic.

The patients on treatment gained in weight or further loss in weight was prevented except the patient (R. S.) who was suffering from involutional melancholia and who lost weight despite treatment. One of the manics, who was markedly hyperactive, was taken off treatment for about two weeks. She lost ten pounds which she regained when she was again placed on treatment. All of the control cases except one lost weight.

The refractive indexes and viscosity determinations on the serum showed interesting changes but one wonders whether these changes could be attributed to the treatment. Thus, readings before treatment were as a rule: viscosity, 1.85 (as compared with water which is taken as 1.0); refractive index, 1.3503. These readings gradually decreased with treatment and remained usually as: viscosity, 1.7; refractive index, 1.3496. These variables were apparently functions of each other, as with an increment or decrement of one there was an increment or decrement of the other.

There were no significant changes in the blood pressure, pulse rate, or temperature.

Four of the patients who were treated, recovered from their mental condition and were discharged. However, all of the four patients were catatonics. In catatonia the incidence of remission is greater than in the rest of the præcox group.

COMMENT.

We are very deficient in our knowledge of the etiology of the so-called functional psychoses. Until such knowledge is gained our treatment of the psychoses will be very inadequate. However,

any therapeutic procedure that improves the physical condition of the patient may indirectly contribute to his recovery.

The prevention of the loss of weight in the psychoses by means of a hydrating solution cannot be placed on as rational a basis as Kugelmass has established in the new-born. The treatment should be carried out on a greater number of cases on a research service where, in addition to a clinical study, determinations are also made of the fluid intake and output, blood sugar and sugar tolerance curves and acid-base equilibrium. This work will be done at the Elgin State Hospital.

Summary and Conclusions.

Twelve patients with an acute psychosis, the greater number of whom were in the acute stage of dementia præcox, were given a hydrating solution to prevent the loss of weight that occurs in these cases. All of the patients were emaciated and dehydrated. Eight patients with a similar mental and physical condition were used as controls. The hydrating solution was developed by Kugelmass for the prevention of loss of weight in the new-born and consists of 6 per cent gelatin, 3 per cent dextrose and 0.5 per cent sodium chloride. It was not used as a source of calories but for the purpose of serving as a hydrator of tissues. The patients were given 18 ounces of the solution daily with meals. All of the treated cases gained weight except the patient with involutional melancholia. Four of the patients with catatonic dementia præcox had a remission. The improved physical condition may have hastened the mental improvement. To determine whether this is a rational treatment the scope of the investigation should be extended to include determinations of fluid intake and output, blood sugar and sugar tolerance curves and acid-base equilibrium.

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Proceedings of Societies.

THE AMERICAN PSYCHIATRIC ASSOCIATION.

PROCEEDINGS NINETY-FIRST ANNUAL MEETING.

WASHINGTON, D. C., MAY 14-17, 1935.

TUESDAY MORNING SESSION.

MAY 14, 1935.

The first business session of the ninety-first annual meeting of The American Psychiatric Association convened in the Mayflower Hotel, Washington, D. C., at ten twenty-five o'clock, the President, Dr. C. Fred Williams, of Columbia, S. C., presiding.

PRESIDENT WILLIAMS.—As President, I now declare the ninety-first annual meeting of The American Psychiatric Association open.

In the absence of the Rev. James Taylor, who was unavoidably detained, Dr. Russell J. Clinchy, of the Mount Pleasant Congregation, has kindly consented to deliver the invocation. Please rise while he does so.

REV. RUSSELL J. CLINCHY.—O Thou Eternal Spirit, we are grateful for the wisdom to understand that this human life of ours was planned to be whole, poised and self-reliant; that we have discovered that the laws of the universe are on the side of health and able to look upon the scene of life with confidence and with hope. We understand how long and how often mankind has allowed itself to be careless and heedless of the great truths of life, has allowed its energies to be dissipated, its reserves to be depleted by an unwise sense of values and by surrender to fear. We rejoice in the midst of a time when so many of our fellow beings have lost the secret of wholesome living and have found themselves unadjusted to life, that there is an increasing number of men and women who are devoting themselves to the search for ways of normal living and the abolition of fear. We see again in them the new prophets of Thine eternal truth, new heralds of the abundant life which comes from Thy spirit, and we ask that upon all those who labor in this cause of mental health may come the great joy of a task well done and above all the consciousness of Thy partnership. Amen.

PRESIDENT WILLIAMS.—The Committee on Arrangements has been fortunate in securing Dr. A. B. Bennett, the distinguished President of the time-honored and historical medical society of this city, to welcome us. Dr. Bennett!

DR. A. B. BENNETT.—This is indeed a great pleasure and in the name of the medical men of Washington, I bid you welcome to our city. My regret

is that our official term of meeting is over for the summer and we can't have you at our home, to some of our meetings. However, the President is still in town and he is here and delighted to welcome you.

Dr. White, whom I admire, I think, more than any man in the medical profession that I know, particularly because he is the exception that proves that adage in the Bible about the prophet being not without honor except in his own country. Dr. White proves the rule by being the exception, because he is with honor in his own country. When he asked me if I would welcome you, my heart went down and I was fearful, but I tried to look brave and said I would be glad to do it, thinking that he just wanted me to say a few pleasantries and welcome you here in that sort of fashion.

Then I received a letter from Dr. Burlingame asking me in a most formal way for my address, or at least a brief of it, for publication. I wrote back that he had spoiled my whole day, that if there was any group of people in this world I was afraid of, it was the psychoanalysts and psychiatrists and that I hadn't any idea of putting down in writing anything that I would ever say to this group of men, because I am somehow conscious that you are psychoanalyzing me right now and it just spoils my time here with you.

My term of office is almost over. I will soon be a has-been. As President of the Medical Society here, I am rather proud to think that my society is 27 years older than yours and at the same time I am awfully proud to be able to speak to an organization that has 91 years behind it, because in this day of hyperorganization when everybody who is not at least a member of five or six societies, will get three or four others together and organize a seventh, we seem to be organizing and organizing, so when I find a society that has lasted through 91 years and has grown so tremendously in the last few, I am very proud to speak before it.

As I look back over my 33 or 34 years of practice, I have witnessed the changes which you have all witnessed, and especially, too, the change in the prominence of specialties. When I was an interne in the hospital, those were the days of the slaughter of the ovaries; everybody entered the lower abdomen and did something. It seemed to be a safe thing to do and they got away with it. At that time, whenever they entered the upper abdomen, the patient died. We considered the upper abdomen a very, very dangerous place to enter. Nobody thought of entering a chest, and now they are entering the chest and taking out whole lobes of lungs.

This same advance in surgery has gone into the brain. We find them entering the brain with wonderful skill and safety. History-taking in those early days, you remember, was only of the physical illnesses, what illnesses the patient had, starting with childhood and going on through, and going back into the parents' history, what illnesses did the parents have. The whole thing was physical.

Now, it makes me tremble to think of the questions you ask when you go into the history of a patient as to what they think and what they dream. So even history-taking has turned over completely and changed in just these few years that I have been in medicine.

One of the most interesting things that came to my attention was a record of the statistics of the increase in the hospital beds over a given period of time.

Over a definite period of time from a year ago to a certain number of years back, the general hospital beds in the country hadn't increased a bed, whereas the beds in insane asylums and hospitals for the treatment of mental cases had doubled.

That takes me back about five years ago when your Society was meeting here, a classmate met me in front of the Medical Society Building and he said, "Bennett, what are you doing?"

I said, "Just ear, nose and throat."

"Oh," he said, "that is a specialty that is passing out, going down; it isn't going to last. You are doomed. You ought to be in mine, it is growing because more people are going crazy every day. It is something that is increasing every minute. That is the line you ought to get into."

It made me think a little bit of Dr. Pepper's remarks the other night at our society. He came from Philadelphia and talked on geriatrics. I hope you all know what geriatrics means. It comes from the Greek word geron which means an old man. He likened geriatrics to pediatrics in the normals for different ages, and so on. He said the beautiful thing about geriatrics is it is a growing specialty because we are having about us more and more old people; in fact, it isn't going to be long, if we introduce birth control, before it will supersede pediatrics.

So with this growing specialty of psychiatry, it makes you pause to think. Every other disease which we have met that has grown and gotten bigger and become a menace to the people of a country we have been able to check or stop by prevention; if it was a sanitary thing, by increasing the sanitation we eliminated it. If it was an infectious thing, we developed vaccine of some sort that would prevent it. We are wiping out diphtheria now with toxoid. There was something there we could take hold of. But with this increase in mental diseases, we don't find it so easy. From all I can gather, the remark always is that it is a failure on the part of the individual to adjust himself to the ever-increasing complexities of life. Now if that is true, if it is a failure of the individual to adjust himself to the increasing complexity and we are, as far as I can see, going to be unable to alter the increasing complexity of life because life gets more and more complex. We can't increase our mechanical things, our institutions, our congestions, our types of buildings, without increasing the complexities of life. If they can't be altered so as to prevent this increase in mental disease, then I don't know but that we will have to fall back, we laymen who are not in your field and maybe haven't your hopes and inspirations behind that law of the survival of the fittest. Maybe it is nature's way to get rid of those that can't adjust and stand the gaff of these ever-increasing complexities. But if there was some way that our lawmakers, who like to pass a half dozen laws a day every day they are in session, increasing these complexities, could be brought face to face with what they are doing to us, maybe things would be less complex. At any rate, if there is any way of preventing mental diseases then the problem is a subject well worthy of the mettle and the caliber of your organization.

So again I want to express my affection for Dr. White, I like to do it publicly, I love to do it before a group of men who know him as you know

him. And as President of the Medical Society of the District of Columbia, I bid you a whole-hearted welcome to our city.

PRESIDENT WILLIAMS.—I shall ask Dr. Cheney, President-elect, to respond to the address of welcome.

DR. CLARENCE O. CHENEY.—*Mr. President, Dr. Bennett, Members of the Association:* I think we will all agree that an address such as this of Dr. Bennett's, of a constructive nature, is one we should like to see duplicated in other parts of this city, which apparently isn't being done. The Association, perhaps, also would like to do something in the way of psychiatric treatment in certain fields in Washington, but that also probably couldn't be done in four or five days, so perhaps we will leave it to Dr. White and his colleagues.

It is particularly gratifying to all of us, I think, Dr. Bennett, to hear you express your appreciation of Dr. White, because those of us in the Association who have known him many years feel the same way. The Association is particularly proud of him because he stands out in one particular respect in which I think you as the President of the County Medical Society might be particularly interested, and that is that Dr. White has the only special mental hospital in the country that is approved by the American Medical Association for interneships as a general hospital. In that respect, he sets the pace for those of us who are associated with other special psychiatric hospitals and who would like to have them recognized as on the same basis as the general hospital.

It is perhaps not necessary for me to express to you on behalf of the Association our pleasure in being here. As one looks over the record of the Association, one finds that the Association has previously many times indicated its appreciation of, and attraction to, Washington. The record shows that the Association has met in Washington during the 91 years more times than in any other city in this country or in Canada. To be specific, it has met here in Washington 11 times during its life.

The second meeting of the Association, in 1846, was held in Washington and even the Civil War did not interfere altogether with holding meetings in Washington because one session was held in 1864. Apparently something particularly attractive happened in Washington in 1891, because the Association returned to Washington in 1892. I am not clear as to what did happen in 1891 to draw the Association back in 1892, but those who were in the Association at that time would know and I am sure we should be glad to have them tell us what did occur.

At any rate, of all the possible places to meet in this country and Canada in the nineties, Washington was selected in two successive years as the only place to meet.

As I say, that may be an indication to you, sir, and to the members of your Society, of our appreciation of Washington and the fact that we are apt to have a very satisfactory and informative and beneficial meeting here. On behalf of our Association, therefore, sir, may I express to you our appreciation of your welcome.

PRESIDENT WILLIAMS.—The next order of business is committee reports. I shall call upon the Committees on Arrangements and Program.

DR. WILLIAM A. WHITE.—I have no special report to make for the Committee on Arrangements except that which is included in the program and printed. Unless somebody wants to ask me something that I may be able to answer, I think everything is down in the program or has been announced otherwise.

Dr. Hamilton, Chairman of the Committee on Program, made several announcements about the program, exhibits, etc.

PRESIDENT WILLIAMS.—We will now have the report of the Council and the report of the Secretary and Treasurer.

SECRETARY SANDY.—I will first give the report of the Council.

The Council met at the Mayflower Hotel, Washington, D. C., Monday, May 13, 1935, at 7.30 p. m. Fifteen members were present. The President presided.

The report of the Executive Committee as presented by the Secretary was approved. (This report is annexed.)

The report of the Committee on Hospitals, presented by its Chairman, Dr. Jackson, was accepted and approved. (This report is also annexed.)

The resignations of the following 13 members and Fellows were accepted: (F) Dr. Charles M. Burdick, (M) Dr. Anna E. Delacroix-Hutchinson, (M) Dr. Charles H. Denser, (M) Dr. Frederick Dunn, (M) Dr. Wm. C. Herriman, (F) Dr. William N. Kenzie, (F) Dr. W. D. McClung, (F) Dr. Edmund M. Pease, (M) Dr. Francis H. Poole, (M) Dr. Anna M. Skinner, (F) Dr. C. A. Van Cor, (F) Dr. Calvin B. West, (M) Dr. Geo. A. Zeller. (F) Fellows 6, (M) members 7.

The Council voted to discontinue service to 10 Fellows and 9 members two years in arrears in dues, a special letter notifying them of this action to be sent by the Secretary. The Council voted to drop 20 Fellows and 10 members who remained three years in arrears in dues, two notices and a special letter having been sent them.

Dr. Cheney, Chairman of the Board of Examiners, made his report, based upon which the Council voted to recommend for election as an honorary member Wagner von Jauregg, of Vienna, Austria; and one associate member to be made a member; 29 applicants for associate membership, 115 applicants for membership, 110 members eligible for transfer to Fellowship.

The President was authorized to designate as a delegate to the Royal Medical Psychological Association, holding its annual meeting in London, July 1 to 5, any Fellow of the Association who will find it possible to attend the meeting in London.

The report of the Committee on Public Education was accepted and approved. (This report is annexed.) In the discussion, it was recommended that the Committee on Public Education give further study to the suggestion

of the desirability of some type of regulation of the public utterances of members, the committee to report at a future meeting of the Council.

Dr. Noyes presented the report of the Committee on Standards and Policies. After considerable discussion, the report was referred back to the committee for revision and submission to the next meeting of the Council.

Dr. Noyes again pointed out the overlapping of the scope of the Committee on Hospitals and the Committee on Standards and Policies.

The Council authorized the Executive Committee to make a further study of the committees of the Association to define the duties of each committee and to make such changes as it deemed necessary, reporting upon any recommendations at the next annual meeting.

Dr. Hamilton, Chairman of the Program Committee, commented upon the large attendance already present, which may make it necessary for some revision of assignment of meeting places for the sections. The Council unanimously expressed appreciation to Dr. Hamilton and his committee for their continued and very efficient services in the preparation of the program.

The Secretary read a communication from Dr. E. Van Norman Emery, Secretary-Treasurer of the Connecticut Society for Psychiatry, requesting admission of that society as a district society of the Association. The Council voted that the Connecticut Society for Psychiatry be admitted as a district society, provided it did not become a district branch of any other organization.

Upon motion of the Council, the President appointed Dr. Russell and Dr. Cheney to consider possible desirable amendments to the article of the By-Laws in reference to district societies.

Dr. Chapman, Chairman of the Committee on Psychiatric Nursing and Therapy, referred to the loss sustained by the committee through the death of the late very efficient Chairman, Dr. Fuller. He reported upon the activities of Miss Harriet Bailey, selected, in cooperation with the committee of the National League for Nursing Education, to make a survey of the training schools of a number of hospitals. (The report of this committee is also annexed.) The Council voted to accept the report with approval, and authorized the Secretary-Treasurer to pay the expenses incurred by this committee.

The Council accepted the report of the Special Committee, consisting of Dr. Cheney and Dr. Burlingame, appointed to investigate the proposed arrangements for the presentation of the Salmon medal. This medal is to be awarded from time to time by the Psychiatric Association to individuals for meritorious service in the field of psychiatry.

Dr. Cheney and Dr. Burlingame reported as to the possibility of arranging for more desirable office space for the New York office of the Association. Adequate office space including ample storage facilities in the basement and access to the library may be secured at the New York Academy of Medicine, 2 E. 103rd Street, New York, for a share of an assessment of approximately $75 a month. The Council authorized the President-Elect to arrange for offices at the New York Academy of Medicine at an annual cost of approximately $900 and to furnish these offices for an amount not to exceed $1000.

There being no further business, the meeting adjourned at 10.30 p. m.

Secretary Sandy read the report of the Secretary. (This report is annexed.)

SECRETARY SANDY.—I also have the Treasurer's report which is based upon the report of the examination of the accounts by the certified public accountant employed at the direction of the Association.

Secretary Sandy read the report of the Treasurer, which is annexed.

PRESIDENT WILLIAMS.—These reports are now before you for consideration and are to be approved by the Association separately. We will first consider the report of the Council. What is the pleasure of the Association?

DR. WILLIAM A. WHITE.—I move its reception and approval.

The motion was seconded, put to a vote and carried.

PRESIDENT WILLIAMS.—The Secretary's and Treasurer's reports are now before you. What is your pleasure?

DR. WHITE.—Mr. President, if I heard aright, I don't feel that Dr. Sandy's statement of membership can possibly be correct. He either made a mistake or I heard wrong. My recollection is that our last census showed something like 1600 membership, as I recall it. He read something like a thousand. Either my memory is in bad shape or else an error has been made.

SECRETARY SANDY.—The total membership as of May 1, 1935, was 1587.

PRESIDENT WILLIAMS.—What disposition will you make of the Treasurer's report?

DR. INCH.—I move the Treasurer's report be received and referred to the Auditing Committee.

The motion was seconded, put to a vote and carried.

PRESIDENT WILLIAMS.—The next order of business is the appointment of the Committee on Resolutions. I shall ask Dr. Ross McC. Chapman, Dr. G. Kirby Collier and Dr. Hugh Carter Henry to act as a Committee on Resolutions.

Since our last meeting, death has entered our ranks and has taken away 30 of our beloved members. I shall ask the Association to rise and remain standing while the Secretary reads the list of these members.

The audience stood while Secretary Sandy read the names of deceased members, as follows:

Frank W. Keating, M. D., Owings Mills, Md., died February 18, 1934.
Augustus S. Keefe, M. D., Kingston, N. Y., died May 12, 1934.

S. Metz Miller, M. D., Norristown, Pa., died May 24, 1934.
Robert L. Richards, M. D., Santa Barbara, Cal., died May 25, 1934.
William D. Runyan, M. D., Sioux City, Iowa, died June 23, 1934.
Millard H. Foster, M. D., Battle Creek, Mich., died July 1, 1934.
F. S. Vrooman, M. D., London, Ont., Can., died July 10, 1934.
Herbert E. Herrin, M. D., Boston, Mass., died July 15, 1934.
Gerald S. Glassco, M. D., Hamilton, Ont., Can., died July 21, 1934.
Theodore H. Weisenburg, M. D., Philadelphia, Pa., died August 3, 1934.
H. Louis Stick, M. D., Canandaigua, N. Y., died August 15, 1934.
Malcolm A. Bliss, M. D., St. Louis, Mo., died September 4, 1934.
Cornelius DeWeese, M. D., Laurel, Md., died September 14, 1934.
Curran Pope, M. D., Louisville, Ky., died September 21, 1934.
William A. Ellison, M. D., Augusta, Ga., died September 22, 1934.
Nelson H. Beemer, M. D., Toronto, Ont., Can., died September 23, 1934.
William F. Drewry, M. D., Richmond, Va., died October 19, 1934.
Henry C. Burgess, M. D., Canandaigua, N. Y., died October 24, 1934.
David W. McFarland, M. D., Greens Farms, Conn., died October 26, 1934.
David M. Gardner, M. D., Northampton, Mass., died November 7, 1934.
René Semelaigne, M. D., Paris, France (Honorary), died November 16, 1934.
M. Nelson Voldeng, M. D., Woodward, Iowa, died November 21, 1934.
Arthur F. Kilbourne, M. D., Rochester, Minn., died November 30, 1934.
John H. Bell, M. D., Staunton, Va., died December 9, 1934.
Clarence Pierson, M. D., Pineville, La., died December 27, 1934.
Percy B. Battey, M. D., Bedford Hills, N. Y., died January 3, 1935.
Daniel H. Fuller, M. D., Upper Darby, Pa., died February 1, 1935.
Ernest M. Poate, M. D., Southern Pines, N. C., died February 1, 1935.
Edmund A. Christian, M. D., Pontiac, Mich., died February 5, 1935.
Edward W. Whitney, M. D., Northampton, Mass., died February 16, 1935.
V. S. Warden, M. D., Saranac Lake, N. Y., died May 8, 1935.

PRESIDENT WILLIAMS.—During this same period, two former Presidents of this Association have passed away. In following our usual custom, we will have memorial services for these two men at this time. I don't think Dr. Wilgus is here, so I shall first call on Dr. Hugh Carter Henry to present the memorial on Dr. William F. Drewry, who was President of the Association in 1909-1910.

Dr. Hugh Carter Henry presented the memorial on the death of Dr. Drewry as follows:

WILLIAM FRANCIS DREWRY.

Following an illness of nearly a year's duration Dr. William Francis Drewry of Virginia, President of The American Psychiatric Association, 1909-1910, died October 19, 1934, at his home in Richmond. His body rests in Blandford Cemetery at Petersburg. His membership in this Association

covered a period of 42 years, during which time he missed but few of its meetings—one of the few being the last meeting when President Kirby at the Banquet session bestowed upon the 12 Past Presidents then living (he being the senior but two in point of service) the gold badge as a mark of esteem of the Association. The grim reaper was even then preparing to be about his business and the doctor's young daughter represented him and received for him the badge and a message of hope and cordial greeting from the President.

Dr. Drewry was born March 10, 1860. He was educated at Randolph-Macon College and the Medical College of Virginia. Very early in his professional career he became interested in mental diseases and he appears to have seen in the rather neglected specialty of psychiatry a field for great development. He was Assistant Physician at Central State Hospital, Petersburg, Virginia, from 1886 to 1896, and its superintendent from 1896 to 1924. His early hospital years were those in which custodial care for mentally sick patients was about all that was attempted or thought of in most asylums, but with this, his progressive spirit was not long content. He classified and segregated the various groups of patients and abolished all forms of mechanical restraint. He visited the best hospitals, studied the most approved methods in treatment and quickly adopted what he considered worthy and practical. It is not hard, therefore, to understand why, during his superintendency, the Central State Hospital, caring for negro patients exclusively, became known as one of the outstanding institutions of the South. His administrative ability attracted rather widespread attention. By reason of this he was called in 1924 to render a public service as City Manager of Petersburg. Resigning this office at the end of his first term he became Director of the newly created State Bureau of Mental Hygiene. Although at this time he was nearly three score years and ten "his eye was not dim nor his natural force abated" and he took hold of the new department with characteristic zeal and carried on until, and even after, illness had laid him low.

It would be a mistake to suppose that Dr. Drewry's interests while a superintendent were limited to his institution, or his activities confined within its walls. He found time to organize the State Board of Charities and Correction, to be a member of the Board of Visitors of the University of Virginia, to serve on a Commission of the legislature to study and make recommendations with reference to the State Care of Epileptics, to serve on the Governor's Advisory Board on Mental Hygiene, to attend and take an active part in various medical and sociological organizations, to be a Rotarian and to do many other things which only a busy man can find time to do.

He began to write on subjects relating to his specialty when he was an assistant physician and continued to write until within a year of his death. His published papers make an interesting and valuable contribution to psychiatric literature. As a collaborator with Drs. Hurd, Dewey, Pilgrim, Blumer and Burgess the work on his section of "The Institutional Care of the Insane in the United States and Canada" is worthy of mention.

He was honored with the presidency of the State Medical Society, the State Tuberculosis Association, the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics and The American Psychiatric Association.

Dr. James K. Hall writing editorially of Dr. Drewry in the State Medical Journal says of him, "He liberated the people of the state from their ignorance of mental sickness by appeals to them directly and through the legislative body. As an expert medical witness in many a courtroom he educated judges, lawyers, jurors, and the public in psychiatry. . . . . In that field he was an educator—and Virginia's first Professor of Psychiatry. I doubt not at all that for a generation he formulated most of the statutory enactments in Virginia relating to medico-legal medicine and to the care of the mentally abnormal. And in that domain he was the pioneer medical statesman."

With the passing away of Dr. Drewry and others like him we are saying farewell to the men who constitute the connecting link between the old "Association of Medical Superintendents of American Institutions for the Insane" and the present "American Psychiatric Association"; and while we owe much to the vision of the founders, we owe much also to the men of the transitional stage, whose sympathy and encouragement to younger men has brought out and developed the scientific spirit which now prevails in the Association and which is manifest in its sessions. But Dr. Drewry, in spite of his years, never grew old. He seemed to possess boundless energy. He was ever hopeful, ever enthusiastic. The spirit of youth buoyed and sustained him and were he alive to-day he would still be one of the young men of this Association.

PRESIDENT WILLIAMS.—Dr. Wilgus is not present, I am informed, so the memorial that he was to present on the death of Dr. Arthur F. Kilbourne will be read by title. (See AMERICAN JOURNAL OF PSYCHIATRY, 91 : 1461.)

I will now ask Dr. Cheney, President-Elect, to take the chair.

Dr. Cheney took the chair.

CHAIRMAN CHENEY.—*Mr. President and Members of the Association:* The President-Elect of this Association, like most vice-presidents, has few real duties and fewer that are pleasant ones. But at this moment all that is made up for by the pleasure that I have in presenting to you, in accordance with time-honored custom, the President of the Association to give his annual address. It goes without saying, of course, that it gives me a great deal of pleasure and gratification to have this opportunity to present to you this morning Dr. Williams.

President Williams read his presidential address entitled "Administrative Psychiatry."

CHAIRMAN CHENEY.—You have expressed manually your appreciation of Dr. Williams' address. I am sure all of you would like to express your

appreciation verbally, but that seems to be rather impossible. So to represent all of you in that expression of appreciation, I should like to call upon Dr. Bond to speak on Dr. Williams' address.

DR. EARL D. BOND.—The President has condensed a lot of good thinking into a short paper. There is every reason to think that I speak for all of this audience when I thank him for it and when I assure him that this Association is completely lined up behind his ideas and the recommendations that may come from them. Of course, Dr. Williams has said in summary that administrators of mental hospitals should be pushed off into the stream of psychiatric activities and then the stream of psychiatric activities should be turned into the main stream of general medicine. It is taken for granted, of course, those administrators who can't keep their heads above water when they get pushed off will sink and be replaced by better swimmers.

It is about 10 years ago that it began to be noticed that a quiet gentleman from South Carolina, with a great capacity for making friends, was putting his well poised judgment and his unselfish loyalty into the service of the Association and it is certainly a pleasure in this session to see him reaping some of the rewards which he deserves.

CHAIRMAN CHENEY.—There is nothing more to come before the session this morning, so we will adjourn until two o'clock this afternoon.

The meeting adjourned at eleven-fifty o'clock.

WEDNESDAY MORNING SESSION.

MAY 15, 1935.

The meeting convened at nine fifty-five o'clock, President Williams presiding.

PRESIDENT WILLIAMS.—The Association will come to order.

The first item of business is the report of the Council. I will call upon our Secretary for that report.

SECRETARY SANDY.—The Council met in the Mayflower Hotel at 7.45 p. m., Tuesday, May 14, 1935, there being 15 members present. The President presided.

Invitations for the 1936 meeting place were considered from Cincinnati, Ohio; St. Louis, Mo.; Louisville, Ky.; Milwaukee, Wis.; Chicago, Ill.; Pittsburgh, Pa.; Rochester, N. Y., and Atlantic City, N. J. Representatives from several of these cities presented their invitations in person.

After careful consideration and prolonged discussion, the Council voted to hold the 1936 meeting in St. Louis, Mo., the time to be fixed by the Executive Committee.

Dr. Campbell, as Chairman of the Subcommittee on Nomenclature and Classification Dealing with Disorders of Children, presented his report, recommending that work on these disorders be allowed to proceed at present unhampered by a standard classification. The report, as received and approved by the Council, is annexed.

Dr. Leland Alford, of Missouri, presented a resolution asking the Association to recommend the consideration of family care of mental patients as worthy of trial and as an economic method of care. The Council voted to refer the resolution to the Committee on Standards and Policies for further consideration.

Dr. Hamilton offered the following amendments to the Constitution: An amendment to Article IV, first paragraph, striking out the word "vice-presidents"; an amendment to Article IV, second paragraph, striking it out entirely; an amendment to Article VI, Section 2, striking out the word "vice-president."

In accordance with the Constitution, these amendments will be printed in the JOURNAL for the information of the membership and considered at the 1936 meeting of the Association.

Dr. Overholser read the report of the Committee on the Legal Aspects of Psychiatry, which was accepted by the Council and is annexed.

Dr. Farr presented the report of the Committee on Research, recommending the authorization of not more than $25 for the expense of establishing a geographical index of research projects being carried on by Fellows and members of the Association for the use of the committee. The Council received the report and approved the grant of not more than $25 for expenses. This report is annexed.

Upon the motion of Dr. Collier, duly seconded, the Council passed the following resolution:

Members of the Association are requested not to issue statements or interviews to the press during the sessions of the Association, except as arranged by the Committee on Public Education.

There being no further business, the Council adjourned at 10.30 p. m.

PRESIDENT WILLIAMS.—You have heard the report of the Council. What is the pleasure of the Association?

DR. BRILL.—I move it be accepted as read.

The motion was seconded by Dr. Kirby, put to a vote and carried.

PRESIDENT WILLIAMS.—You will note the next item is election of members. I think that usually comes on Thursday, so we will postpone election of members until tomorrow.

Report of the auditors. Dr. Henry!

Dr. Henry read the report of the auditors. (This report is annexed.)

PRESIDENT WILLIAMS.—You have heard the report of the Auditing Committee. What is your pleasure?

It was regularly moved, seconded and carried, that the report be accepted and filed.

PRESIDENT WILLIAMS.—Report of the Nominating Committee. Dr. Kirby!

DR. GEORGE H. KIRBY.—*Mr. President, Members of the Association:* The Nominating Committee, consisting of Dr. Meyer, Dr. Barrett, Dr. Farrar, Dr. Swint and myself, submit the following report:

For President, Dr. Clarence O. Cheney, New York, N. Y.
For President-Elect, Dr. Charles Macfie Campbell, Boston, Mass.
For Secretary-Treasurer, Dr. William C. Sandy, Harrisburg, Pa.

In submitting the nominations for Councillors, the committee was under the impression that it was to nominate four, whereas we find we were only to nominate three, as the retiring president automatically, under the Constitution, becomes a member of the Council.

We recommend, therefore, for Councillors—

Dr. C. F. Williams, Columbia, S. C.
Dr. Walter L. Treadway, Washington, D. C.
Dr. J. Allen Jackson, Danville, Pa.
Dr. George H. Stevenson, London, Ont., Can.

For Auditor, Dr. Julian W. Ashby, Raleigh, N. C.

PRESIDENT WILLIAMS.—You have heard the report of the Nominating Committee. What is the pleasure of the Association?

DR. A. A. BRILL.—I move you, sir, this report be accepted and the Secretary be empowered to cast one ballot for the election of these officers.

The motion was seconded.

PRESIDENT WILLIAMS.—It has been moved and seconded the report be accepted and the Secretary cast the unanimous ballot of the Association for the officers recommended.

I believe it is usually customary to ask if there are any nominations from the floor. Hearing none, the motion will be put.

The motion was put to a vote and carried.

PRESIDENT WILLIAMS.—Mr. Secretary, will you cast the ballot?

SECRETARY SANDY.—The Secretary has cast the ballot, sir.

PRESIDENT WILLIAMS.—The recommendations of the Nominating Committee have been passed by the Association and the officers recommended will be your officers the next year.

Is there any unfinished business? Any new business?

Dr. Cheney, the President-Elect, desires to make an announcement to the Association. I will call upon him at this time.

DR. CHENEY.—Mr. President, this hasn't anything to do with my being President-Elect. I had hoped that in the more recent JOURNAL OF PSYCHIATRY the full details regarding the American Board of Psychiatry and Neurology would have been published, but they were not, and I feel that a good many members are uninformed or perhaps misinformed regarding the Board. We have thought it wise to take this opportunity to make some brief statement of the facts regarding the development and organization of the Board so that the members may be informed.

You will recall that at the Boston meeting in 1933, when the Constitution was changed there was established a board of examiners of the Association, which was to carry out the examination of applications for membership in the Association and to carry out other duties that were assigned to it by the Council.

Immediately after the appointment of that Board of Examiners, which consisted of Dr. Adolf Meyer, Dr. White, Dr. Campbell, Dr. Ebaugh and myself, the Council placed upon the Board the responsibility of carrying out a procedure for the organization of an American Board of Psychiatry. We had already received an invitation to meet with the delegates of the other specialty boards already operating in Milwaukee in connection with the A. M. A. annual meeting. Dr. Campbell and I were delegated to represent our Association at such a meeting.

At that meeting there was a question as to whether the American Medical Association was to be the organization to determine the qualifications for specialists. That was a very active situation because certain representatives of the American Medical Association had indicated that the A. M. A. was the organization to determine who were specialists and that self-limited special groups were not the ones to do this.

The meeting was called, therefore, for the particular purpose to decide who was to certify specialists. The A. M. A. group at that time in Milwaukee denied any real desire to determine the qualifications of specialists, but they did indicate their interest in seeing that the members or physicians certified as specialists were properly qualified members of the American Medical Association. The group representing the specialty boards began the organization in Milwaukee of an Advisory Board of the Specialties and tried to have passed by the House of Delegates a motion that the Council of the A. M. A. should recognize and approve of the certifications of these special boards. The A. M. A. House of Delegates refused to do that, because it did not feel that the Council of the A. M. A. should be obligated to take any recommendation of a smaller, self-limited group.

The Advisory Board of Specialties, however, went on with its organization and decided to draw up standards for specialization and to try to cooperate with the American Medical Association. Dr. Campbell and I found immediately that it would not be feasible and would amount, probably, to entire

lack of recognition, if an attempt were made to form an American Board of Psychiatry without the consideration of the Section on Nervous and Mental Diseases of the American Medical Association. All of the special boards had representation on their boards from the respective sections of the American Medical Association. It was indicated, therefore, that we should have to cooperate with the section of the A. M. A. to have a recognized board.

It also immediately developed that we could not have a board of psychiatry alone with the American Medical Association but that the American Neurological Association would have to be considered, otherwise there would be contention and a non-acceptance of any board that was formed without their representation.

Therefore, at the 1933 meeting of the A. M. A., a resolution was presented and passed in the Section on Nervous and Mental Diseases that the section would cooperate with us and other recognized national organizations in forming a board of certification; the other recognized organization was the American Neurological Association. Representatives were appointed from the section to meet with us and later on we asked representatives to be appointed from the American Neurological Association. This was done, and the designated representatives of the three groups met in December, 1933, in New York, and agreed that the board should be called a Board of Psychiatry and Neurology, and that there should be equal representation of psychiatrists and neurologists on the board, and that there should be separate examinations for neurologists and psychiatrists.

Subsequently we worked upon the qualifications for the examinations and certification of psychiatrists and neurologists. It so happened that the Dean of the College of Physicians and Surgeons, Dr. Rappleye, was Chairman of the Committee on Standards of the Medical Advisory Board. I knew that they were going to suggest standards similar to those provided at Columbia University, that is, for a three-year post graduate special training. Therefore, with that knowledge we worked out a scheme for the qualifications of neurologists and psychiatrists. Those were approved by our Council and the Association and by the American Neurological Association at the respective 1934 meetings as well as by the section of the A. M. A.

We met with the Advisory Board in June, 1934, in Cleveland, and because of the fact that we had already had an understanding with its Committee on Standards our recommendations and qualifications for certification were immediately accepted by the Advisory Board and we were made a member of the Advisory Board of Specialties. The qualifications that we had set up were similar to those recommended to, and accepted by, the A. M. A. for specialty qualifications and training in general.

The question came up then of the official organization of the Board. You recall that last year, four representatives were very definitely designated from this Association; the same was done from the American Neurological Association and from the Section of the A. M. A. In October, 1934, we gathered for an organization meeting. Meanwhile, I had drawn up a certificate of incorporation and tentative by-laws, similar to those drawn up and approved by other boards. Those were sent to the designated representatives,

commented on, and with the approval of the representatives, I arranged for the incorporation of the Board of Psychiatry and Neurology under the laws of the state of Delaware, so that at the time of the meeting of the official representatives of the Board, the incorporation had already been carried out and we were prepared to act. Officers of the Board were elected and by-laws were adopted.

We had another meeting in December, 1934, in New York, and to give some indication of the details that have had to be considered, I may say that we started the meeting at eight o'clock one evening and broke up the next morning at two-thirty.

Immediately it was evident that other details had to be worked out so that there was a special meeting of the Board called in Chicago in February, and we all went out to Chicago to meet and pass on further details and work out plans. As a result of that more recent meeting, a printed statement has been drawn up, which is available to all of you who wish to apply for it.

As I said, I had hoped that all of the details of this procedure would be published in the JOURNAL OF PSYCHIATRY so that you would be informed. But may I say, particularly to reassure those who have been in practice a good many years, that it is not the intention of the Board to give a written or practical examination to those who have been established in practice for a long time.

There are several classes of membership. Those who were graduated before 1919 may be passed upon their records, and it may not be and probably will not be necessary for those persons to come before the Board for examination.

Class II is made up of those physicians who were graduated after 1919 and up to 1929, and there may be an examination of those candidates, depending upon the type of training or the amount of training they have had.

There is another group, Class III, those who were graduated after 1929 and up to 1934, who will be asked to take a written and practical examination at the time the Board holds its meetings.

Those who graduate after 1934 shall fulfill those rather definite requirements which have been passed upon and agreed upon by the Board of Specialties and the A. M. A. These are essentially: (1) graduation from a medical school approved by the Council on Medical Education and Hospitals of the A. M. A. and by our Board; (2) completion of a general internship. (This latter is not required of the older candidates but it will be required of everybody who has graduated since 1934); (3) three years of special training in hospitals, clinics, dispensaries, laboratories and other institutions recognized by the Council of the A. M. A. and by the Board as satisfactory for training; (4) in addition, two years of practice or additional training are required. No one will be qualified to apply for the examination or certification unless he shall have had five years of training.

If anyone wishes to be certified for both neurology and psychiatry, not less than six years' training, including both neurology and psychiatry, is necessary.

There is provided a separate certification for psychiatry and neurology, or certification in both. It is a problem that we will have to work out as to

who are neurologists and psychiatrists and who are both. There has been no hard and fast line drawn or standard set up to determine definitely how that shall be decided. There will be a good many neurologists and psychiatrists who will wish to be certified as both. As a matter of fact, the survey shows that more of the members of this Association have indicated in the American Medical Directory that they are practicing both neurology and psychiatry than as practicing psychiatry alone.

May I say that although we have worked long and hard, the relationship of the members of the American Medical Association and the American Neurological Association has with our members been entirely friendly. There has been no acrimonious battling. We have talked things over and come to general harmonious agreements.

The psychiatrists may feel that we have given in to the neurologists and to the A. M. A., but may I insist that without the inclusion of the representatives of the A. M. A., this Board would have had no standing. Some of the neurologists, on the other hand, have said, that we, the psychiatrists, have seized and gained every point to the disadvantage of the neurologists. That is not so. The Board members do not feel that way. It is the persons who have been outside and who are not acquainted with the facts and the details that we have worked out who feel that there has been an advantage gained by one side or the other.

A Committee on Credentials for our Board has been appointed to consider not only the applications of various candidates but also to determine as far as possible what hospitals are good places for training, and that will be one of the functions of the Board to carry out, not to set up standards necessarily, but that may eventually work itself out. The Board should, we feel, be the organization to help hospitals determine whether they are proper places for training of candidates who will come before the Board.

Those who wish to apply for applications should address Dr. Walter Freeman, at 1726 I Street, of this city, who is Secretary of the Board.

A word about the fee. The application fee is $25, and the certification fee is an additional $25. That sounds like a good deal of money to many persons. We have been accused of trying to make a good deal of money out of it, but may I say that in accordance with the constitution and the by-laws, no member of the Board receives a cent for his services. His services are given entirely gratuitously. We do think it is fair, however, that the members of the Board giving their time, as they do, should not be put to expense in traveling around the country, as we shall have to do. So that from past experience of other boards, the fee has been set in order to finance the Board. The size of the fee has been determined from previous experiences of other boards, and it is not expected that the Board will make any money.

If eventually it turns out that the fee is larger than necessary, perhaps the fee might be reduced, but I don't want to have you go away with the idea that we are charging too large an initial fee and are going to reduce it later. I can't say that is going to happen at all. We do feel that it is advisable for the members of this Association to make application and to be certified as soon as possible.

May I emphasize that the older members, the men who have been in practice a long time, do not need to worry about being brought before the Board and given a severe examination; that is not expected to be done. We expect to be reasonable about it. The Board is setting up its standards for qualifications, emphasizing particularly the recent and coming graduates, to try to see that they get an adequate clinical training in neurology and psychiatry and that they may eventually be certified as specialists after having had training that some of us were not able to get. But the older men are over the dam. It is recognized that they are competent. There will be no quarrel about certifying men who are, by their experience, training and professional reputation recognized as competent and safe men to practice psychiatry and neurology.

PRESIDENT WILLIAMS.—I am sure we are all grateful to President-Elect Cheney for the explanation that he has made.

Announcements by Dr. Hamilton, Chairman of the Program Committee.

The meeting adjourned at ten twenty-five o'clock.

BANQUET SESSION.

WEDNESDAY EVENING, MAY 15, 1935.

The banquet of the ninety-first annual meeting of The American Psychiatric Association was held in the Ball Room of the Mayflower Hotel, Washington, D. C., at seven o'clock; the President, Dr. C. F. Williams, acting as Toastmaster.

PRESIDENT WILLIAMS.—*Members of the Association and Guests:* This beautiful city, the capital of our beloved country, possesses many charms and attractions which hold one's attention, but I am sure you will agree with me that its greatest charms are its interesting and distinguished people. We are fortunate to be honored this evening by the presence of such persons—men who by reason of their intellect and capacity in many ways have reached the top round of the ladder of fame in their chosen fields—men who are not only nationally but internationally known and are appreciated for the services they have and are rendering their own country and the world at large.

What I have said concerning the men applies equally as well, in fact more so, to the fairer and gentler sex for every man in this audience knows that any accomplishment of his of a worth while nature has been usually due to the inspiration or influence of some good woman.

Many things could be said about all of our distinguished guests, but time will not permit a detailed recital. There are certain things, however, which I feel should be said as they are of special interest to you.

All of you probably know that one of our distinguished guests has been an honorary member of our Association for many years and rendered a

distinct service to psychiatry while the Surgeon in Chief of the American Expeditionary Forces in France. He later served with great distinction as the Surgeon General of the United States Army, and, even though he is now retired he retains his interest in medicine and is rendering conspicuous service as a member of the Council of the American Medical Association and the National Examining Board. I refer to General M. W. Ireland.

The Honorable Oscar L. Chapman has long been interested in the subject of psychiatry and by virtue of this fact and his position as Assistant Secretary of the Interior he is now concerned with many of the administrative policies of Saint Elizabeth's Hospital in which he is greatly interested. In the constructive program of this splendid institution in recent years he has been one of the moving spirits. May I also say confidentially that he informs me that one of the most difficult tasks he has to perform is to keep straight the beloved member of this Association who is the superintendent of that institution.

There are four gentlemen I particularly wish to present to you. They are Admiral Percival S. Rossiter, Surgeon General of the United States Navy; Generals R. U. Patterson, Surgeon General of the United States Army; Hugh S. Cumming, Surgeon General of the United States Public Health Service; and Frank T. Hines of the Veterans' Administration.

These gentlemen, besides the great numbers of questions daily confronting them and the weighty policies they have to determine, find time to be members of the Board of Visitors of Saint Elizabeth's Hospital and of the Federal Board of Hospitalization, and have under their control the small number of 100,000 hospital beds. We make our bow to them for the wonderful work they are doing and the splendid service they are rendering.

There is Dr. Earl B. McKinley, who is Dean of the George Washington Medical School, to whom we are greatly indebted for his active interest in psychiatry. The medical college over which he has the honor to preside is one of the first to inaugurate proper standards of teaching this important part of medicine.

Your attention is called to the presence of one of our distinguished past presidents, Dr. Hubert Work. You may be interested to know why he has a place with our distinguished guests. It is said that he did at one time hold a rather important position in Washington. But, taking you into my confidence again, I am informed that he was placed on this side merely to balance the table. Any way, all of us are very proud of Dr. Work and rejoice in the distinction that has been his.

This leaves only Dr. and Mrs. Robert Howe Harmon who will introduce themselves through the delightful program they will put on for your entertainment a little later.

In behalf of the Association I want to assure our guests that we feel greatly honored by their presence, and we are delighted to have them with us on this occasion.

Now we will pass from the sublime to the ridiculous. Those on the right constitute, with few exceptions, the "has beens" and are worthy of no further comment. They are, however, commended to the continued care of those kindly spirited persons who have looked after them these many years.

I feel that I must take this occasion to ask Dr. Cheney, your president for the year 1935-1936, to stand in order that we may give him a hand.

Now from the ridiculous back to the sublime.

It is said that the originators of the New Deal, when confronted with the problem of devising suitable names for the various bureaus then being created, found the task very difficult until someone, in a fortuitous moment, thought of an alphabetical arrangement suggested by the degrees and honors of Major Edgar E. Hume.

Major Hume has undoubtedly been the recipient of academic and professional distinctions accorded to few men of any time or nation.

To mention only his outstanding achievements in this regard; he holds a B. A., an M. A., an LL. D., an M. D., a D. P. H., a D. M., a C. P. H., a D. T. M., an Sc. D., and a Litt. D. Besides belonging to more than a dozen learned societies of this and other nations, he is entitled to wear the Distinguished Service Medal of his own government and military decorations from more than a score, to be exact, 26 nations of the earth.

He is a Knight of Malta, an honorary professor in the Military University of Warsaw and the 1933 winner of the Sir Henry Wellcome prize.

Serving throughout the World War he was present during the Meuse-Argonne, St. Mihiel and Victoria-Veneto engagements, receiving wounds during the last named struggle while attached to the British Expeditionary Forces.

He has directed earthquake relief in Italy and fought typhus fever in Serbia.

A loyal American citizen and soldier, a world traveler, a gentleman and a scholar, and a delightful companion. A host of clubs, fraternities and patriotic societies boast of his membership within their ranks. And he is the honored guest at a hundred tables.

But perhaps he is best known among the members of this Association and their guests who are assembled here this evening as the custodian of the remarkable Medical Library of the United States Army. To this assemblage and in this capacity he really needs no introduction, nevertheless the honor of sponsoring so distinguished a guest is one I would not willingly relinquish. It, therefore, gives me great pleasure, ladies and gentlemen, to present to you at this time Major Edgar Erskine Hume, who will now address you on "The Drama of a Great Medical Library."

MAJOR EDGAR E. HUME.—*Mr. Toastmaster, Ladies and Gentlemen:* I am deeply grateful for the kind words used in introducing me, words that I do not deserve. The small part I have to play in the dinner tonight is merely a reflection of the position I happen to hold for the present moment as Librarian of the Army Medical Library, and I may even say that I am only the deputy of my chief, the Surgeon General, who, under the law, is charged with the function of administering this great institution.

(Major Hume's address will be found on page 259.)

TOASTMASTER WILLIAMS.—Major Hume, I am sure the response of this audience conveys to you its appreciation much more than any word I can utter. I do want to thank you most sincerely for this very interesting and inspiring address.

Following the address, a splendid musical program was rendered by the George Washington Glee Club of 120 voices, under the direction of Dr. Robert Howe Harmon. Mrs. Harmon at the piano.

After the musical program, there was dancing until two a. m.—the music being furnished by Sidney's Orchestra.

THURSDAY MORNING SESSION.

MAY 16, 1935.

The meeting convened at nine fifty-five o'clock, President Williams presiding.

PRESIDENT WILLIAMS.—The Association will come to order, please.

The first item of business is the report of the Council. I will ask the Secretary to make that report.

SECRETARY SANDY.—The Council met in the Mayflower Hotel, Wednesday afternoon, May 15, 1935. The President presided, 14 members being present.

A member of the Committee on Ethics reported on the questionable professional practices of a member of the Association. After consideration of the circumstances, the Council voted that a letter should be sent to the member informing him that his actions had been regarded as detrimental to the Association, intimating that his resignation would be acceptable, stating further that if his resignation is not submitted, charges will be preferred at the next annual meeting of the Association.

The Council received and accepted the report of the Committee on Nomenclature and Statistics as presented by Dr. May, the Chairman. (The report is annexed.)

The Council approved the suggestion that the Chairman of the Committee on Nomenclature and Statistics be considered the official representative of the Association in matters within the scope of that committee.

The Council received with approval the report of the Special Committee on Sections, of which Dr. Noyes is Chairman. (The report is annexed.)

The Council instructed the Secretary to advise the Association on Mental Deficiency that, as recommended by the Committee on Sections, the establishment of a Section on Mental Deficiency in The American Psychiatric Association was favored.

The Secretary was further instructed to extend to the Association on Mental Deficiency a cordial invitation to meet with this Association at its annual meeting.

The Council authorized the Secretary to invite such members as may desire a Section on Mental Deficiency to indicate the same by letter or petition to the Secretary. Upon the receipt of a sufficient number of signatures, such a section will be arranged, the President to designate temporary officers to conduct the first sessions.

The report of the Committee on Lay Psychotherapy was referred back to the committee for reconsideration, a further report to be made at the December meeting of the Council.

Dr. Farrar, the Editor, read his report on the proposed index of the JOURNAL. The report was accepted with appreciation and the Editorial Board was asked to continue their consideration of this project.

It was moved, seconded and carried, that the Council recommend to the Association that Dr. Meyer, Dr. Campbell, Dr. Ebaugh and Dr. Cheney, be designated to represent the Association on the American Board of Psychiatry and Neurology for another year.

The term of Dr. Meyer on the Board of Examiners having expired and the Constitution prohibiting a reappointment, upon nomination by Dr. Cheney, the President appointed to the Board for five years, Dr. J. Allen Jackson, of Danville, Pennsylvania, who is a member of the American Board of Psychiatry and Neurology representing the American Medical A sociation.

The Council adjourned at 5.25 p. m.

PRESIDENT WILLIAMS.—The report of the Council is before you. What is your pleasure?

DR. DONALD GREGG.—I move it be accepted and filed.

The motion was seconded, put to a vote and carried.

PRESIDENT WILLIAMS.—The next item of business is election of members. The Secretary will present the list of members.

SECRETARY SANDY.—The printed list of members is in your hands. You will note there is one nominee for honorary membership, Wagner von Jauregg, of Vienna, Austria; one for reclassification from associate member to member; 29 physicians proposed for associate membership, 114 proposed for membership, and 100 proposed for Fellowship, these having already been members for sufficient time.

These names have been passed upon by the Board of Examiners of the Association, were proposed to the Council, which has approved their recommendation to the Association for election.

PRESIDENT WILLIAMS.—What is the pleasure of the Association?

DR. CHENEY.—Mr. President, I move that the Association approve the recommendation of the Board of Examiners and the Council for the election

of these individuals, according to the various classes of membership, as outlined on the printed lists that are before the members of the Association; and that the Secretary be instructed to cast the ballot for the election of such individuals.

The motion was seconded by Dr. Ziegler, put to a vote and carried.

HONORARY MEMBERSHIP, MAY, 1935.

von Jauregg, Wagner, Vienna, Austria.

ASSOCIATE MEMBER TO MEMBER.

Wolberg, Lewis Robert, Kings Park State Hospital, Kings Park, Long Island, N. Y.

ASSOCIATE MEMBERSHIP, MAY, 1935.

Barnacle, Clarke Horace, Colorado Psychopathic Hospital, Denver, Colo.
Campbell, Nancy Duval, St. Elizabeths Hospital, Washington, D. C.
Clark, Anne L., Foxboro State Hospital, Foxboro, Mass.
Doyle, Arthur Manning, Toronto Psychiatric Hospital, Toronto, Ont., Canada.
Fellows, Ralph Manos, Menninger Clinic, Topeka, Kansas.
Gunn, Donald Ross, Toronto Psychiatric Hospital, Toronto, Ont., Canada.
Herskovitz, Herbert H., State Hospital, Wernersville, Pa.
Jordan, Paul H., Mansfield St. Tr. Sch. & Hosp., Mansfield Depot, Conn.
Lovell, Harold Wm., Psychopathic Hospital, Iowa City, Iowa.
McNiel, Edwin Ewart, Bloomingdale Hospital, White Plains, N. Y.
Miller, Milton Leonard, Payne Whitney Psychiatric Clinic, New York City.
Moorad, Philip Jacob, Brigham Hall Hospital, Canandaigua, N. Y.
Moxness, Bennie A., U. S. Veterans Facility, Northampton, Mass.
Murray, Cecil Dunmore, 155 East 72nd Street, New York City.
Nersessian, Aznive, Foxborough State Hospital, Foxborough, Mass.
Obermann, Charles F., Clarinda State Hospital, Clarinda, Iowa.
Pearson, Grosvenor B., Boston Psychopathic Hospital, Boston, Mass.
Porter, Marshall Elmer, Sonoma State Hospital, Eldridge, Calif.
Rogers, Lieuen Moss, U. S. Hospital for Defective Delinquents, Springfield, Mo.
Sharp, Morris Louis, Foxborough State Hospital, Foxborough, Mass.
Sommer, Conrad Samuel, Chicago Inst. for Juvenile Research, Chicago, Ill.
Starbuck, Helen L., Mendocino State Hospital, Talmadge, Calif.
Sturdevant, Charles O., 707 Medical Central Bldg., Portland, Ore.
Sugar, Carl, Arizona State Hospital, Phœnix, Arizona.
Titley, William Bauman, 889 Lexington Avenue, New York City.

Watters, Theodore A., Henry Phipps Psychiatric Clinic, Baltimore, Md.
Winlock, Rachel Mulford, Wernersville State Hospital, Wernersville, Pa.
Wittson, Cecil Legriel, Central Islip State Hospital, Central Islip, L. I., N. Y.
Wolff, Harold G., 525 East 68th Street, New York City.

FOR MEMBERSHIP, MAY, 1935.

Adams, Charles C., U. S. Veterans Hospital, Augusta, Ga.
Angelo, Charles, Kings Park State Hospital, Kings Park, L. I., N. Y.
Apfelberg, Benjamin, Bellevue Psychiatric Hospital, New York City.
Arwine, James T., Veterans Admin. Facility, Palo Alto, Calif.
Austin, James Monroe, South Carolina State Hospital, Columbia, S. C.
Barahal, Hyman S., Kings Park State Hospital, Kings Park, L. I., N. Y.
Barton, Walter Earl, Worcester State Hospital, Worcester, Mass.
Bean, Victor H., U. S. Veterans Hospital, Marion, Ind.
Bell, Peter, 425 E. Wisconsin St., Milwaukee, Wis.
Bengs, Hilding Arvid, Warren State Hospital, Warren, Pa.
Billings, Edward G., Colorado General Hospital, Denver, Colo.
Bittle, Harry, Central Islip State Hospital, Central Islip, N. Y.
Black, Neil D., Marcy State Hospital, Marcy, N. Y.
Brady, Emery John, Colorado Springs, Colo.
Brann, Harold W., Veterans Admin. Facility, Palo Alto, Calif.
Buckman, Ethel Friedman, State Hospital, Allentown, Pa.
Burton, Glenn Stewart, Toronto Psychiatric Hospital, Toronto, Ont., Canada.
Buyer, Edith Michael, Albert Leonard Jr. High School, North Ave., New Rochelle, N. Y.
Byrne, Ultan Patrick, Provincial Mental Hospital, Essondale, B. C., Canada.
Chittick, Rupert Addison, Foxboro State Hospital, Foxboro, Mass.
Clow, Henry Leon, Mansfield State Hospital and Tr. Sch., Mansfield Depot, Conn.
Collins, Marion, State Dept. of Mental Hygiene, Albany, N. Y.
Compson, Florence M., Conn. State Hospital, Middletown, Conn.
Coon, Gaylord Palmer, Foxboro State Hospital, Foxboro, Mass.
Costeff, Harry, Peoria State Hospital, Peoria, Ill.
Cottom, Thomas I., Allegheny Co. Hospital, Woodville, Pa.
Crispell, Raymond S., Duke Hospital, Durham, N. C.
Crouch, Elmer L., Veterans Admin. Facility, Palo Alto, Calif.
Cushard, William Green, St. Elizabeth's Hospital, Washington, D. C.
Davies, Dora M. Judkins, Hastings State Hospital, Ingleside, Nebr.
Davis, Charles Frank, Veterans Admin. Facility, Marion, Ind.
Draper, Paul A., 316 Ferguson Bldg., Colorado Springs, Colo.
Dwyer, Frank, Veterans Admin. Facility, Northampton, Mass.
Edelstein, John E., Harlem Valley State Hospital, Wingdale, N. Y.
Farland, Victor L., Conn. State Hospital, Middletown, Conn.

Farrell, Chester H., Hastings State Hospital, Ingleside, Nebr.
Felix, Robert Hanna, Dept. of Justice Medical Center, Springfield, Mo.
Fenimore, Benjamin B., Mansfield State Tr. Sch. and Hospital, Mansfield Depot, Conn.
Flowers, Hiland L., Veterans Admin. Facility, Bronx, N. Y.
Flocker, Hubert H., Columbus State Hospital, Columbus, Ohio.
Forest, J. Louis P., Vermont State Hospital, Waterburg, Vt.
Gee, Arthur Milsap, Provincial Mental Hospital, Essondale, B. C., Canada.
Gildea, Edwin Francis, Institute of Human Relations, 333 Cedar St., New Haven, Conn.
Goode, Delmar, Veterans Admin. Facility, N. Chicago, Ill.
Goodhart, Simon Philip, 30 West 59th Street, New York City.
Grady, Charles W., Veterans Admin. Facility, Palo Alto, Calif.
Graves, Charles Coakley, State Hospital, Marlboro, N. J.
Guidon, Erel L., Medfield State Hospital, Harding, Mass.
Hankins, Melissa Milner, Mansfield State Tr. Sch. and Hosp., Mansfield Depot, Conn.
Hoch, Paul, Manhattan State Hospital, Wards Island, New York City.
Holmes, Gladys Viola, Montana State Hospital, Warm Springs, Montana.
Horney, Karen, 20 East 76th Street, New York City.
Houser, Gerald Fredk., Boston State Hospital, Boston, Mass.
Hughes, William Newton, 112 Waterman Street, Providence, R. I.
Ibrahim, Abdu M., U. S. Veterans Facility, Northport, L. I., N. Y.
Ingram, George Hartwell, Veterans Admin. Facility, Marion, Ind.
Isenman, Robert, Conn. State Hospital, Middletown, Conn.
Karlan, Samuel C., State Hospital, Dannemora, N. Y.
Kildee, Henry A., Veterans Admin. Facility, Danville, Ill.
Kindred, John Cramer, River Crest Sanitarium, Astoria, L. I., N. Y.
Kinley, John Wm., N. J. State Hospital, Graystone Park, N. J.
Kohler, Louis H., City Sanitarium, St. Louis, Mo.
Lavine, George Robert, Worcester State Hospital, Worcester, Mass.
Lawrence, Bertrand Gray, Delaware State Hospital, Farnhurst, Del.
Lewis, Willis Edgar, Veterans Facility, Tuskegee, Ala.
Lynch, Roland Joseph, Hudson County Hospital, Secaucus, N. J.
McCall, John Charles, U. S. Marine Hospital, Ellis Island, N. Y.
Mace, Norman C., Veterans Admin. Facility, American Lake, Wash.
Marquardt, Matthias, Augusta State Hospital, Augusta, Maine.
Martins, Anna Wilhelmina, Ontario Hospital, Orillia, Ont., Canada.
Metzger, Ida, Ypsilanti State Hospital, Ypsilanti, Mich.
Miller, Joseph Samuel, Rockland State Hospital, Orangeburg, N. Y.
Milling, Chapman James, S. C. State Hospital, Columbia, S. C.
Morris, Leonidas J., Veterans Admin. Facility, Tuskegee, Ala.
Murchison, Alexander J., Falconwood Hospital, P. E. I., Canada.
Murray, John Milne, 370 Commonwealth Avenue, Boston, Mass.
Newman, Israel, Augusta State Hospital, Augusta, Maine.
Ott, Evelyn Raynolds, 1947 Marin Avenue, Berkeley, Calif.
Patterson, Ralph Morris, Ypsilanti State Hospital, Ypsilanti, Mich.

Pescor, Michael James, U. S. Northeastern Penitentiary, Lewisburg, Pa.
Postle, Beatrice, Columbus State Hospital, Columbus, Ohio.
Preston, George H., 330 N. Charles Street, Baltimore, Md.
Reaser, Edward Franklin, Huntington State Hospital, Huntington, W. Va.
Reed, George Ernest, Verdun Protestant Hospital, Verdun, Que., Canada.
Riendeau, Fernand M., Norwich State Hospital, Norwich, Conn.
Riley, Henry Alsop, 117 East 72nd Street, New York City.
Rowland, Edward Gould, Norwich State Hospital, Norwich, Conn.
Russman, Charles, Conn. State Hospital, Middletown, Conn.
Scott, William A., Ypsilanti State Hospital, Ypsilanti, Mich.
Seliger, Robert V., 2140 Mt. Royal Terrace, Baltimore, Md.
Slattery, John Joseph, Medfield State Hospital, Harding, Mass.
Southcombe, Robert Henry, Eastern State Hospital, Medical Lake, Wash.
Stein, Nobe E., Manhattan State Hospital, New York City.
Stewart, Joseph Stokes, Ontario Hospital, Toronto, Ont., Canada.
Stone, Simon, New Hampshire State Hospital, Concord, N. H.
Storchheim, Frederic, Milwaukee Co. Asylum for Chronic Insane, Wauwatosa, Wis.
Thompson, Walter Anderson, Rockland State Hospital, Orangeburg, N. Y.
Sukov, Marvin, Clarinda State Hospital, Clarinda, Iowa.
Toms, Roland E., Veterans Admin. Facility, Palo Alto, Calif.
Urbaitis, John Charles, Warren State Hospital, Warren, Pa.
Wander, Maurice C., Kings Park State Hospital, Kings Park, L. I., N. Y.
Warne, Ralph Caldwell, Sing Sing Penitentiary, 354 Hunter St., Ossining, N. Y.
Wechsler, Israel S., 1112 Park Avenue, New York City.
Westrope, Gordon Robert, S. C. State Hospital, Columbia, S. C.
Whiting, Harry St. John, Conn. State Hospital, Middletown, Conn.
Wiggin, Dayton C., Veterans Admin. Facility, Lyons, N. J.
Williams, Virgil B., U. S. Veterans Facility, Lyons, N. J.
Wood, Lorin Francis, Jr., Veterans Facility, Ft. McKenzie, Sheridan, Wyo.
Woodfin, Lyle Lynden, Osawatomie State Hospital, Osawatomie, Kansas.
Woods, William Leon, Psychopathic Hospital, Iowa City, Iowa.
Woodward, George DeWitt, Longview Hospital, Cincinnati, Ohio.
Zabriskie, Edwin G., 115 East 61st Street, New York City.
Zellin, Morris, Veterans Admin. Facility, Northampton, Mass.
Zimmerman, Fredk Thomas, Norristown State Hospital, Norristown, Pa.

FOR FELLOWSHIP, MAY, 1935.

Altshuler, Ira M., 569 Fisher Bldg., Detroit, Mich.
Armour, Robert G., 170 St. George St., Toronto, Ont., Canada.
Baker, Elsworth Fredk., State Hospital, Marlboro, N. J.
Barber, Theodore M., Norfolk State Hospital, Norfolk, Nebr.
Barker, Prince Patanilla, Veterans Admin. Facility, Tuskegee, Ala.
Beck, Gilbert Monroe, 40 North St., Buffalo, N. Y.

Bender, Lauretta, Bellevue Psychiatric Hospital, New York City.
Bennett, Abram Elting, 1204 Medical Arts Bldg., Omaha, Nebr.
Bennett, Clyde Rolland, Las Encinas, Pasadena, Calif.
Berner, Frank, 114 East 54th Street, New York City.
Bernstein, Charles, Rome State School, Rome, N. Y.
Blalock, Joseph Rogers, N. Y. Psychiatric Institute and Hosp., New York City.
Branche, George Clayton, Veterans Admin. Facility, Tuskegee, Ala.
Broadwin, Isra Tobias, 116 West 59th St., New York City.
Bromberg, Walter, Bellevue Psychiatric Hospital, New York City.
Brown, Leonard Morris, Veterans Admin. Hospital, St. Cloud, Minn.
Chamberlain, Leslie Robert, Danville State Hospital, Danville, Pa.
Collins, Laurence Martin, N. J. State Hospital, Greystone Park, N. J.
Connelly, Harold Edw., Dannemora State Hospital, Dannemora, N. Y.
Collins, John G., Veterans Admin. Facility, N. Chicago, Ill.
Cushman, Ruggles A., Mendocino State Hospital, Talmadge, Calif.
Delacroix, Arthur C., U. S. Veterans Facility, Lyons, N. J.
Diethelm, Oskar, Johns Hopkins Hospital, Baltimore, Md.
Dillon, John Alfred, Larned State Hospital, Larned, Kansas.
Dorris, Earl Denton, Gardner State Colony, E. Gardner, Mass.
Dunn, Wm. Harold, Cornell Medical School, New York City.
Eaton, Hamblen Cowley, Warren State Hospital, Warren, Pa.
Eaton, Richard Gardner, Veterans Admin. Facility, Lincoln, Nebr.
Emery, Edgar VanNorman, Institute of Human Relations, New Haven, Conn.
Fisher, E. Moore, Veterans Admin., Washington, D. C.
Galbraith, Hugh Malcolm, N. H. State Hospital, Concord, N. H.
Gaunt, George A., 6 Parley Vale, Jamaica Plain, Mass.
Goshorn, Roy Wilson, 526 Martin St., Bellwood, Pa.
Gosline, Harold Inman, Bellevue Psychiatric Hospital, New York City.
Gowan, Lawrence R., 1026 Medical Arts Bldg., Duluth, Minn.
Grogan, Frank M., City Sanitarium, St. Louis, Mo.
Harris, Titus Holliday, 705 U. S. National Bank Bldg., Galveston, Tex.
Heflin, Anna Fay, 1718 Arch Street, Philadelphia, Pa.
Helgesson, Uno Helmer, Smith College, Northampton, Mass.
Howes, Seth F. H., State Hospital, Howard, R. I.
Howitt, John Ranson, Ontario Hospital, Toronto, Ont., Canada.
Howland, Goldwin W., 326 Medical Arts Bldg., Toronto, Ont., Canada.
Hurst, Daniel D., Henry Ford Hospital, Detroit, Mich.
Hutchings, Charles Wyatt, State Hospital, Marcy, N. Y.
Irish, Cullen Ward, 1930 Wilshire Blvd., Los Angeles, Calif.
Israel, Robert H., Warren State Hospital, Warren, Pa.
Johnson, Simon Overton, Veterans Admin. Facility, Tuskegee, Ala.
Kiene, Hugh Edward, Charles V. Chapin Hospital, Providence, R. I.
Larson, John A., 907 S. Lincoln St., Chicago, Ill.
Levine, Maurice, 700 Provident Bank Bldg., Cincinnati, Ohio.
Long, Harland W., 240 S. Winebiddle St., Pittsburgh, Pa.

Lorand, Sandor, 115 East 86th St., New York City.
Luton, Frank, Vanderbilt Univ. Hospital, Nashville, Tenn.
McAdoo, Hosea Webster, Springfield State Hospital, Sykesville, Md.
Magee, Harold Sinclair, N. J. State Hospital, Trenton, N. J.
Masters, Howard Russell, The Tucker Sanitarium, 212 W. Franklin St., Richmond, Va.
Murphy, Dennis John, Veterans Admin. Facility, Chillicothe, Ohio.
Newell, Horatio W., 622 W. Lombard St., Baltimore, Md.
Nielson, Juul C., Hastings State Hospital, Ingleside, Nebr.
Noble, T. Douglas, Sheppard and Enoch Pratt Hospital, Towson, Md.
Osterheld, Roger G., State Hospital, Taunton, Mass.
Pace, Garland H., Utah State Hospital, Provo, Utah.
Parker, Z. Rita, 115 East 61st Street, New York City.
Paul, Francis, Hall Brooke Sanitarium, Green Farms, Conn.
Perkins, Clifton Todd, Worcester State Hospital, Worcester, Mass.
Porter, Joseph A., 3801 Walnut Street, Philadelphia, Pa.
Quinn, Karl Vincent, State School, Belchertown, Mass.
Rappaport, Walter, Napa State Hospital, Imola, Calif.
Raymond, C. Stanley, Wrentham State School, Wrentham, Mass.
Render, William Elmer, 1412 South 6th St., Louisville, Ky.
Richmond, Frank C., State Board of Control, Madison, Wis.
Ridout, Lilla, State Hospital, Norristown, Pa.
Rothschild, David, State Hospital, Foxborough, Mass.
Rothschild, Karl, 49 Bayard Street, New Brunswick, N. J.
Rothschild, Leonard, 116 West 59th St., New York City.
Russell, Ethel Clarissa, State Hospital, Norristown, Pa.
Satterfield, Val Beyer, 415 Lister Bldg., St. Louis, Mo.
Schilder, Paul Ferdinand, 52 Gramercy Park, N., New York City.
Schroeder, Paul Louis, 55 E. Washington St., Chicago, Ill.
Schwartz, Louis Adrian, 10 Peterboro Ave., Detroit, Mich.
Schwenkenberg, Arthur J., 1932 Medical Arts Bldg., Dallas, Tex.
Shapera, William, 1016 Clark Bldg., Pittsburgh, Pa.
Sleeper, Francis H., Worcester State Hospital, Worcester, Mass.
Smith, Alan Percival, Jr., Veterans Admin. Facility, Tuskegee, Ala.
Spradley, Jeemes Brutus, N. J. State Hospital, Trenton, N. J.
Steele, Edson Hun, 523 West 6th St., Los Angeles, Calif.
Steen, Patricia H., Kings Park State Hospital, Kings Park, L. I., N. Y.
Steen, Reginald Reed, Dept. of Mental Hygiene, 80 Center St., New York City.
Super, Albert Haeseler, Kenilworth, Pottstown, Pa.
Tallman, Frank F., Rockland State Hospital, Orangeburg, N. Y.
Unsworth, Herbert R., 503 Legendre Bldg., New Orleans, La.
Wallace, Warren W., Western State Hospital, Bolivar, Tenn.
Waterman, Chester, Norwich State Hospital, Norwich, Conn.
Whitmire, Clarence L., Veterans Admin. Facility, Knoxville, Iowa.
Whitney, E. Arthur, Elwyn Training School, Elwyn, Pa.
Wilfong, Clavel T., Veterans Admin. Facility, Roanoke, Va.

Williams, Frank Fay, Patton State Hospital, Patton, Calif.
Wiseman, John I., State Hospital, Torrance, Pa.
Woodall, Charles Simpson, Fernald State School, Waverly, Mass.
Yorshis, Morris, Worcester State Hospital, Worcester, Mass.

PRESIDENT WILLIAMS.—Mr. Secretary, will you please cast the ballot?

SECRETARY SANDY.—The ballot has been cast, sir.

PRESIDENT WILLIAMS.—The various persons who have been indicated on the printed sheets that you have before you have been elected to membership and Fellowship in this Association.

The meeting adjourned at ten-five o'clock.

FRIDAY MORNING SESSION.

MAY 17, 1935.

The meeting convened at nine fifty-five o'clock, President Williams presiding.

PRESIDENT WILLIAMS.—The Association will please come to order. The first item of business is the report of the Council.

SECRETARY SANDY.—The Council met in the Mayflower Hotel, Thursday afternoon, May 16, 1935. Dr. Williams, the President, presided, there being 12 members present.

Dr. Noyes, Chairman, read the report of the Committee on Standards and Policies. The Council accepted the report and authorized its use by the Committee on Public Education for publicity purposes. The report will be printed in full in the transactions.

Upon motion duly made and seconded, the Executive Committee was authorized and instructed to proceed with the classification and grading of mental hospitals in the United States and Canada.

Dr. Cheney read the report of Dr. Meyer, Chairman of the Committee on Psychiatry and Medical Education. The Council received the report with approval. (It is annexed.)

Upon motion of Dr. Cheney, the Council approved the appointment of Dr. Overholser to the Executive Committee in place of Dr. Russell whose term has expired, and the continuance of Dr. Noyes on this committee.

The Executive Committee for the coming year will, therefore, consist of the following Fellows:

Dr. Cheney, New York, N. Y., the President.
Dr. Campbell, Boston, Mass., the President-Elect.
Dr. Sandy, Harrisburg, Pa., the Secretary-Treasurer.
Dr. Noyes, Howard, R. I., member of the Council.
Dr. Overholser, Boston, Mass., member of the Council.

Dr. Barrett discussed the desirability of arranging, if possible, for the presence of representatives of the boards of control of the various states at meetings of The American Psychiatric Association for the purpose of discussing administrative problems, methods and plans in respect to mental hospitals.

The Council voted that the President appoint Dr. Overholser as the Chairman of a Special Committee, the other members to be selected by him, to contact the governors of the various states, inviting them to designate delegates from central or other boards of control to attend a symposium on administrative policies in reference to the care of the mentally ill during the meeting of The American Psychiatric Association.

The Council received a petition from 22 members requesting the establishment of a Section on Mental Deficiency. This petition was referred to the President-Elect for appointment of temporary section officers, in accordance with a resolution passed at the Council meeting of May 15.

The following officers of sections for the coming year have been reported:

Section on Convulsive Disorders:
Chairman Dr. C. A. Marsh, of Pennsylvania.
Secretary Dr. Stanley Cobb, of Massachusetts.
Section on Psychoanalysis:
Chairman Dr. Richard H. Hutchings, of New York.
Vice Chairman Dr. Smith Ely Jelliffe, of New York.
Secretary Dr. Nolan D. C. Lewis, Washington, D. C.
Section on Forensic Psychiatry:
Chairman Dr. Raymond F. C. Kieb, of New York.
Secretary Dr. V. C. Branham, of New York.

The Council adjourned at 5.20 p. m.

PRESIDENT WILLIAMS.—The report of the Council is before you.

DR. INCH.—I move the report of the Council be approved and accepted.

The motion was seconded by Dr. Tyson, put to a vote and carried.

The meeting recessed at ten o'clock to go into the scientific session, and reconvened at twelve-fifteen o'clock, President Williams in the chair.

PRESIDENT WILLIAMS.—The next item is the report of the Committee on Resolutions. Dr. Chapman!

Dr. Ross McC. Chapman read the report of the Committee on Resolutions which is annexed.

PRESIDENT WILLIAMS.—The report of the Committee on Resolutions is now before you.

I want to take this occasion of expressing my appreciation to all of the officers of the Association and to all of the members for the valuable contributions that have been made this year for a successful meeting. I could express appreciation to certain individuals and perhaps certain individuals are entitled to appreciation more than the Association as a whole, but I have never enjoyed anything more in my life than the elbow touch of the members of the Association, and particularly of our Secretary, our President-Elect and members of the Executive Committee and the Council.

I also want to say that we are greatly indebted to the Chairman and his Committee on Program and to the Chairman and his Committee on Arrangements.

I think it would now be proper for a motion to accept the resolutions.

DR. INCH.—I move their acceptance.

The motion was seconded, put to a vote and carried.

PRESIDENT WILLIAMS.—The hour has now arrived for the induction into office of our President and I shall ask Drs. Barrett, of Michigan, and Noyes, of Rhode Island, to escort the President to the chair.

Dr. Barrett and Dr. Noyes escorted the newly elected President, Dr. Cheney, to the platform.

PRESIDENT WILLIAMS.—I shall now ask our good friend, Dr. Hutchings, to present him to the Association.

DR. RICHARD H. HUTCHINGS.—*Mr. President, Fellows of the Association:* In considering the careers of men of outstanding achievement, we can sometimes see that destiny or fate steps into the picture, takes possession of some young man of superior intelligence and outstanding qualities of character and puts before him those opportunities for self-development which lead on to great things if seized upon to the fullest extent. Such has been the career of our new President.

Born in Poughkeepsie, New York, educated in Columbia University, a graduate of the College of Physicians and Surgeons in 1911, his interest immediately turned to psychiatry at Manhattan State Hospital, to which so many of our leaders trace their beginning. There he came under the influence of several men who, I am sure, must have exerted an influence upon his development of no small value. I am thinking of Hoch, a scientist, an investigator, a pioneer in the newer psychiatry, and I am thinking of Dunlap, that sound and thoroughly capable pathologist, a man of scientific conscientiousness, who was unafraid to take issue with any claim which he believed to be insecurely founded. There he, too, came under the influence of George Kirby, whom we honor and respect, and who was recently our President.

Dr. Cheney's early training has admirably fitted him for leadership in psychiatry. Beginning soon after his introduction into the Manhattan State

Hospital in the pathological department, the character of the work carried on there, the scientific acumen and investigating spirit which prevailed among the staff, all contributed to the breadth and scope of his scientific background.

Then in 1917, he became more directly associated with Kirby as assistant director of the Institute, where he developed talents for investigation and interpretation which distinguished him already, but he was destined for another and larger field.

In 1922, I succeeded in persuading him to come as assistant superintendent to Utica, where I was struggling with a problem of the construction and organization of a department of the institution greater than the institution itself. Dr. Cheney there had opportunities to develop those practical, common sense attributes which were inherent in his make-up, and for four years he devoted himself to clinical work, and also practical duties of administration. His success prompted his appointment as Superintendent of the Hudson River State Hospital in 1926, where he had five constructive years, and at the end of which time he was made Director of the Psychiatric Institute and Hospital in New York, the position he now holds.

So it can be seen he has had opportunities which were utilized to the fullest extent, not only in the realm of pure science and in the field of investigation, but also that he was endowed with a sound appreciation of the common sense aspects of problems, and that, I believe, is the outstanding quality which distinguishes our new President and which prompts us to have confidence in his judgment. We are not afraid that he will go off on some tangent, that he will seize upon some fad or be carried away by some new suggestion which is not based upon scientific principles and not thoroughly practical. We find him always with his feet firmly planted on the ground, and it is for qualities like all of these that we eagerly accept his leadership in all that pertains to psychiatry and to the advancement of our specialty.

So, Mr. President, it is with great pleasure and satisfaction, in which there is a warm personal element, that I present to you your new President, Dr. Clarence O. Cheney, of New York.

The audience arose and applauded.

PRESIDENT WILLIAMS.—Dr. Cheney, the members of The American Psychiatric Association have called you to the high office of President, the greatest honor the Association can bestow. It has done so because it feels you possess those qualities of head and heart which will make the Association secure in your hands.

The service you rendered the Association for many years as its efficient Secretary has thoroughly acquainted you with the needs of all its departments, and we know your administration will be one of constructive activities.

In turning the gavel over to you I can truthfully say that if your experience proves to be that of mine you will find much joy in the work which lies ahead—a joy and pride in seeing the Association move along the con-

structive lines you will plan, and that personal joy and satisfaction that comes from the elbow touch of friends and comrades in a common cause.

I want to take this occasion to pay tribute and to add my expressions of appreciation to those contained in the report of the Committee on Resolutions for the wonderful spirit of cooperation and the heart warming friendly attitude shown by all who have made this excellent meeting possible.

I can assure you that you need have no fear but that you will have the hearty support of the entire membership of the Association; certainly such has been my experience.

Dr. Cheney, it gives me much pleasure to place in your hands the official gavel of The American Psychiatric Association, and to declare you its President.

President Cheney took the chair.

PRESIDENT CHENEY.—*Dr. Williams, Dr. Hutchings and Members of the Association:* Ordinarily I feel that I have fairly good control over my emotions, but this is a moment which shows me that that is not always so.

In any scientific organization, we are presumably primarily concerned with scientific things, but the feeling that comes through long association, close association with our friends in such an association as this is not scientific, it is not cold, it is not objective, but it is subjective. It cannot be measured. But in spite of that, I think you will all agree with me that there is little, if anything, that can take the place of the friendships that develop in close association with our fellows in a group such as this.

I have been fortunate in having such similar friendly association throughout my whole professional career. As I look back on what is now nearly 25 years of psychiatric work, I have only the pleasantest, kindliest feelings for those with whom I have become associated, and it is perhaps unnecessary for me to say that I have particularly kindly feelings for my previous chief, Dr. Hutchings, who has so graciously presented me today.

I recognize that the honor you have conferred upon me today is a recognition of the work that I have attempted to do during the last seven or eight years in the Association. That work was rather intensive. Sometimes it was not easy, but I am glad to say that it was never unpleasant, and one derived the satisfaction in that work of feeling that perhaps something was being accomplished for the good of the organization.

I recognize the credit that you are giving me, but I am not the only one that deserves credit for the work that I have been able to do. If Mrs. Cheney were not here, I could go into a good deal of detail regarding the difficulties that have occurred in carrying out what would have been pleasant social activities, and the taking of holidays, because of the necessity of my working Saturday afternoons and Sundays and sometimes far into the night on the Association activities. I feel personally that the Association owes her a debt of gratitude for tolerating and permitting me to continue with the work as she has so graciously and patiently, and without the complaint that other persons might very well have expressed.

I look forward to the next year in the same way that Dr. Williams looks back upon his last year, with the anticipation of pleasant associations with the members of the Association. I assure you it is very gratifying to me to have an expression from so many individual members of the Association of congratulation, and it is very gratifying to feel, as I hope I may be justified in feeling, that no one in the Association regrets that the selection has been made as it is. At least, if there is any such feeling, the members have been good enough not to express it.

I have probably been as close to the members of the Council and the members of the Committees of the Association as any one member of the Association during the past seven or eight years, and it gives me a good deal of comfort to feel that many of those members whom I have been able to know personally so well during those years will continue to give me support on the Council and as members of the committees during the next year.

We look forward, then, with a great deal of pleasure, at the same time with a very definite feeling of responsibility to you, to try to see that your wishes are carried out and that the name of the Association will continue to stand for everything that is good in psychiatry, and I assure you that we shall make every effort to see that nothing that is done by the Association shall be of a detrimental reflection on the name of this time-honored Association.

I have a duty to perform immediately. In a way, it is a pleasant duty, but in another way it is not so pleasant. The Association, as you know, last year established the procedure of presenting to the retiring President a Past President's medal. I should prefer not to present this medal to Dr. Williams, because it indicates something of the past. I should a good deal rather have him continue on for another year and longer, if that were possible. But, unfortunately, the Constitution does not permit the President to carry on more than one year. Dr. Williams says he has had a pleasant year. We all feel that it has been a pleasant one with him as President.

Dr. Williams may recall that in 1917 or 1918, he came to New York and with his very persuasive manner almost persuaded me to leave New York and to go South with him. There were rather deep roots in New York, however, and that time his persuasive powers didn't accomplish what they set out to do, but I am not at all sure that it wasn't a mistake for me to make the decision to stay where I was. I didn't know Dr. Williams so well at that time, but it didn't take very long to realize that one was dealing with an outstanding gentleman, a kindly person, with whom it would be a pleasure to be associated. And in the past years, particularly as I have gotten to know him more closely in connection with the Association work, I have doubted more and more, as I say, whether perhaps it was not a mistake to decline the privilege of being associated with him in his hospital work. I have very definitely the feeling that if I had become associated with him, there would have been in Columbia that gentle spiritual contentment, progressive and helpful atmosphere, that would have made one very happy and very well satisfied with living.

However, it has been a particular pleasure to be associated with him so closely this last year. He has had, I feel we all believe, one of the most

successful years and one of the most successful meetings in the history of the Association. In having Dr. Williams as a Past President, we, however, continue to have his close association as a member of the Council and for at least three years the Association will be fortunate in having him as an active member in the affairs of the Association.

Dr. Williams, it becomes my duty to present to you, sir, this badge of the Association which indicates that you have fulfilled the duties of its highest office and that the Association looks upon you as one who has accomplished a great deal for it. We hope, sir, that you will cherish this badge and associate with it the feeling of gratitude, affection, loyalty to you, that it represents and which goes with it in its presentation.

PAST PRESIDENT WILLIAMS.—Mr. President, I can assure you that your instructions will be obeyed and that this badge will always remain with me among my most cherished possessions. I may add that I rather suspect it will be the only thing which might lead to blows among some of my grandsons.

PRESIDENT CHENEY.—Mr. Secretary, is there anything further to come before this Association?

SECRETARY SANDY.—Nothing further.

PRESIDENT CHENEY.—If there is no further business that anyone wishes to bring before the Association, I declare the ninety-first annual meeting adjourned until the next meeting to be held in St. Louis in 1936.

The meeting adjourned at twelve-fifty o'clock. (Total registration 1264, of which 552 were members.)

WILLIAM C. SANDY, *Secretary-Treasurer.*

PROCEEDINGS SCIENTIFIC SESSIONS

OF THE

NINETY-FIRST ANNUAL MEETING

OF THE

AMERICAN PSYCHIATRIC ASSOCIATION

MAY 13 TO 17, 1935, WASHINGTON, D. C.

SECTION ON FORENSIC PSYCHIATRY. MONDAY MORNING SESSION, MAY 13, 1935.

Opening Address by Dr. William A. White, Chairman.

Relation of Trauma to Mental Diseases, by Dr. Abraham Myerson. Discussion by Drs. Foster Kennedy, Walter B. Martin, Bernard Glueck, L. P. O'Donnell, and Abraham Myerson.

A Study of Criminal Aggressiveness, by Drs. Sylvan Keiser and Paul Schilder. Discussion by Drs. Paul Schilder, David Levy, Bernard Glueck and Sylvan Keiser.

Methods of Apprehending Criminals, by Hugh H. Clegg.

MONDAY AFTERNOON SESSION, MAY 13, 1935.

Dr. William A. White presiding.

The Practice of Psychiatry in an Institution for Delinquents: An Analysis of Its Scope, Limitations and Possibilities, by Dr. Max Winsor. Discussion by Drs. Clarence O. Cheney, Paul L. Schroeder, Clinton P. McCord and Max Winsor.

The Active Use of Phantasy in Treatment of Children's Behavior Problems, by Dr. John Levy. Discussion by Drs. Paul Schilder and John Levy.

Criminal Behavior in the Later Period of Life, by Dr. Paul Schroeder.

Spontaneity Training: A New Method for the Treatment of Problems of Delinquency, by Dr. Jacob L. Moreno.

SECTION ON CONVULSIVE DISORDERS. MONDAY MORNING SESSION, MAY 13, 1935.

Dr. Temple Fay presiding.

Address of the Chairman, Dr. Temple Fay.

Dynamic Concepts Relative to Epileptic Attacks, by Dr. Smith Ely Jelliffe.

The Cerebrospinal Fluid Findings in Essential Epilepsy, by Drs. H. Houston Merritt and William G. Lennox. Discussion by Drs. S. Bernard Wortis, Stanley Cobb, J. Fremont Bateman, Temple Fay and Houston Merritt.

The Blood Serum Calcium in Epilepsy During the Convulsion, by Drs. Michael Scott and Albert W. Pigott. Discussion by Drs. Dan S. Renner, Joseph J. Michael, J. W. Kenley, Frank H. Pike and Michael Scott.

The Relation of the Cerebral Cortex to Urinary Incontinence and Other Visceral Manifestations of Convulsive Disorders, by Dr. James W. Watts. Discussion by Drs. Walter Freeman, Ernst A. Spiegel and James W. Watts.

Fundamental Effects of Epileptogenous Agents Upon the Central Nervous System, by Dr. Ernst A. Spiegel and M. Spiegel-Adolf. Discussion by Drs. S. Bernard Wortis, A. B. Mangus, Temple Fay and Ernst A. Spiegel

Abnormal Electric Disturbances Occurring in the Brain at the Time of an Epileptic Seizure, by Drs. Frederick A. Gibbs, Hallowell Davis and William G. Lennox. Discussion by Drs. Morgan B. Hodskins, S. Bernard Wortis, H. Houson Merritt, Ernst A. Spiegel, A. L. Skoog and Frederick A. Gibbs.

MONDAY AFTERNOON SESSION, MAY 13, 1935.

Dr. Temple Fay presidnig.

The Epilepsies, by Dr. Foster Kennedy.

Anti-retentional Therapy in Conditions Ascribed to Intracranial Liquid Accumulation, by Dr. Eugene Foldes.

Convulsions in Childhood, by Dr. M. G. Peterman. Discussion by Drs. William T. Shannahan and M. G. Peterman.

Clinico-Psychological Aspects of Epilepsy, by Dr. O. Spurgeon English. Discussion by Drs. Stanley Cobb, A. B. Mangus and O. Spurgeon English.

Application of a Modified Dehydration Régime for Institutional Epileptics, by Dr. E. Arthur Whitney. Discussion by Drs. H. V. Pike and E. Arthur Whitney.

A Comparison of the Weights of Various Organs of Epileptic and Schizophrenic Patients, by Drs. Merrill Moore and William G. Lennox. Discussion by Drs. Stanley Cobb and Merrill Moore.

The Effects on the Convulsion Threshold of Certain Pathological Obstructions in the Cerebral Circulation, by Dr. J. Fremont Bateman. Discussion by Drs. H. Houston Merritt, Frederick A. Gibbs and Temple Fay.

Diabetes Mellitus an Unusual Complication of Epilepsy, by Dr. Albert W. Pigott. Discussion by Drs. Isidore Finkelman, Warren G. Murray and Albert W. Pigott.

Sensitization in the Convulsive States, with Special Reference to Heterophile Antigen, by Dr. Edward W. Lazell.

Some Miscellaneous Observations on Convulsive Manifestations of Experimental Origin in Animals, by Drs. Frank H. Pike and Helen Coombs.

Election of officers.

SECTION I, TUESDAY AFTERNOON, MAY 14, 1935.

President Williams at first presiding, Dr. Adolf Meyer later in the chair.

The Material Dealt with as Personality-Function by the Various Workers in the Field of Psychiatry.

Introductory Statement by Dr. Adolf Meyer.

The Material as Worked on by the Psychologist, by Dr. Walter R. Miles.

The Material as it Organizes Itself with the Psychopathologist and Psychotherapist, by Dr. William Malamud.

The Material as it Organizes Itself with the Psychoanalyst, by Dr. Sandor Rado.

The Material as it Organizes Itself with the Internist, by Dr. Stanley Cobb.

The Material in the Hands of the Biochemist, by Dr. John C. Whitehorn.

The Material with Anatomopathological Orientation, by Dr. Lauretta Bender.

Summation by Dr. Adolf Meyer.

WEDNESDAY MORNING, MAY 15, 1935. JOINT SESSION WITH SECTION ON PSYCHOANALYSIS.

President Williams at first presiding, Dr. Brill later acting as Chairman.

Anticipations and Corroborations of the Freudian Concepts from Non-Analytic Sources, by Dr. A. A. Brill.

The Feeling of Unreality, by Dr. Clarence P. Oberndorf.

The Application of Psychoanalysis to Psychiatric Problems, by Dr. Bernard Glueck.

The Bodily Organs and Psychopathology, by Dr. Smith Ely Jelliffe. Discussion by Drs. Karen Horney and Franz Alexander.

WEDNESDAY AFTERNOON, MAY 15, 1935.

President Williams at first presiding, Dr. A. H. Ruggles later acting as Chairman.

Psychiatric Implications of Education—Pre-School, by Dr. Douglas A. Thom.

Psychiatric Implications of Education—The Grades, by Dr. Frederick H. Allen.

Psychiatric Implications of Education—High School, by Dr. George S. Stevenson.

Psychiatric Implications of Education—The College Level, by Dr. Theophile Raphael.

Psychiatric Implications of Education—General Considerations by Dr. Vivian T. Thayer. Discussion by Drs. Edgar Van Norman Emery, R. Grant Barry, Frederick L. Patry and S. Alan Challman.

THURSDAY MORNING, MAY 16, 1935.

President-Elect Cheney presiding.

False Concepts of Diseases or Conditions as Psychogenic Foci, by Drs. Lloyd H. Ziegler and Jacob Hyman. Discussion by Drs. Roger E. Pinkerton, Jacob Hyman, Clarence O. Cheney and Lloyd H. Ziegler.

The Lethal Power of the Emotions, by Dr. Donald Gregg. Discussion by Drs. Joseph C. Roper, Horatio M. Pollock and Donald Gregg.

A Study of Alcoholism in Men, by Dr. James H. Wall. Discussion by Drs. Lloyd H. Ziegler, Paul Schilder, Thomas French, Frank R. Starkey and James H. Wall.

Psychoses Among Followers of Father Divine, by Drs. Lauretta Bender and Zuleika Yarrell. Discussion by Drs. Lionel L. Cazenavette, Theodore Diller, Theodore R. Robie and Lauretta Bender.

The Psychotherapy of Adolescents, by Dr. Florence Powdermaker. Discussion by Dr. Paul Schilder.

THURSDAY AFTERNOON, MAY 16, 1935. ADMINISTRATIVE TOPICS.

President Williams presiding, Dr. Jas. K. Hall later acting as Chairman.

Psychological Medicine as Practiced by the Quack, by Dr. Charles A. Rymer.

The First Year of the New Psychiatric Classification in Massachusetts Mental Hospitals, by Dr. Neil A. Dayton. Discussion by Drs. Charles A. Rymer, John L. Van de Mark, Abraham Myerson, Arthur H. Ruggles, William A. Bryan and Neil A. Dayton.

Physical Therapy in a Mental Hospital, by Dr. Richard H. Hutchings, Jr. Discussion by Drs. Guy Payne and Richard H. Hutchings, Jr.

The Prescription of Occupational Therapy, by Drs. Agnes Conrad and Robert B. McGraw.

Newer Psychotherapeutic Methods, by Dr. Valentine Ujhely. Discussion by Drs. Archibald McCausland, Frank R. Starkey, Arthur H. Harrington, Willem van de Wall and Valentine Ujhely.

FRIDAY MORNING, MAY 17, 1935. ADMINISTRATIVE TOPICS.

President Williams presiding.

A Balanced Program of Occupational Recreational Activities, by Drs. Robert H. Israel, Leonard Rosenzweig and John C. Urbaitis.

Relation of Paranoid Delusions to the Functions of the Gastro-Intestinal Tract, by Drs. Franz Alexander and William C. Menninger.

Recreation for Hospitalized Psychotics, by Dr. Appleton H. Pierce. Discussion by Drs. Willem van de Wall, Frank R. Starkey, Meyer K. Amdur, Henry I. Klopp, Arthur H. Harrington and Appleton H. Pierce.

The Art and Practice of Psychiatric Examination, by Drs. Kenneth E. Appel and Elmer V. Eyman. Discussion by Dr. Oscar J. Raeder.

SECTION II. TUESDAY AFTERNOON SESSION, MAY 14, 1935.

President-Elect Cheney presiding.

Language Study in the Psychoses, by Dr. William L. Woods. Discussion by Drs. Frederick R. Sims, William A. White and William L. Woods.

The Manic Phase of Manic-Depressive Reactions; A Clinical Study, by Dr. Joseph E. Blalock. Discussion by Drs. Hugh Galbraith and C. O. Cheney.

Types of Suicide—Clinical and Ethnological Parallels, by Dr. Gregory Zilboorg. Discussion by Drs. William A. White and Gregory Zilboorg.

A Statistical Study of Benign Stupor in Five New York State Hospitals, by Dr. Hyman L. Rachlin. Discussion by Drs. Clarence P. Oberndorf, C. O. Cheney and Hyman L. Rachlin.

WEDNESDAY MORNING SESSION, MAY 15, 1935.

President-Elect Cheney presiding.

Post-Encephalitic Behavior Disorders: A Ten Year Review of the Franklin School, by Drs. Earl D. Bond and Lauren H. Smith. Discussion by Drs. H. Gaylord Hubbell, William C. Garvin, Russell E. Blaisdell, Alberta S. Guibord and Earl D. Bond.

Subdural Hemorrhage: Its Occurrence Among Psychotic Patients, by Drs. Anna M. Allen, Blanche Brine Daly and Merrill Moore. Discussion by Drs. Nathaniel H. Brush, C. O. Cheney, Abraham Myerson and Anna M. Allen.

Instinctive, Emotional and Mental Changes Following Prefrontal Lobe Extirpation, by Dr. S. Spafford Ackerly. Discussion by Drs. Morgan B. Hodskins, Earl D. Bond, C. O. Cheney and S. Spafford Ackerly.

Traumatic Psychoses: A Study of Fifty Committed Cases, by Dr. Clarence A. Bonner.

Anatomic Consideration in Clinical Interpretations of Brain Injuries, by Dr. Irving Sands. Discussion by Drs. Robert M. Ross, Clarence A. Bonner, Leroy M. A. Maeder, C. O. Cheney, Andrew L. Skoog and Irving J. Sands.

WEDNESDAY AFTERNOON SESSION, MAY 15, 1935. STUDIES FROM THE LABORATORY.

President-Elect Cheney at first presiding, Dr. Wm. Malamud later acting as Chairman.

The India Ink Reaction (Tuschreaktion) of Spinal Fluid, by Dr. Elmer Klein.

Allergic Reactions in Mental Diseases, by Dr. Joseph A. Beauchemin. Discussion by Drs. Harry S. Bernton and Joseph A. Beauchemin.

Hormone Therapy in Involutional Psychiatric Disorders, by Dr. Irville H. MacKinnon. Discussion by Drs. Thomas A. Ratliff, Morgan B. Hodskins and C. O. Cheney.

Studies of Alzheimer's Disease, by Drs. David Rothschild and Jacob Kasanin. Discussion by Drs. Andrew C. Gillis, Frank R. Starkey, William Malamud and David Rothschild.

Cyclic Psychic Disturbances Associated with Menstruation, by Drs. Meyer M. Harris and William A. Horwitz. Discussion by Drs. Charles C. Rowley, Morgan B. Hodskins, Lloyd H. Ziegler and Meyer M. Harris.

THURSDAY MORNING SESSION, MAY 16, 1935. STUDIES FROM THE LABORATORY.

Dr. R. H. Hutchings presiding.

The Macroscopic Blood Examination, by Dr. Henry D. Allen, Jr. Discussion by Drs. Harold I. Gosline, Annie R. Elliott, Melvin W. Thorner and Henry D. Allen, Jr.

Effect of Vitamins A and D and Mineral Administration in Dementia Præcox, by Drs. John Notkin, Frances Krasnow, Viola Huddart, William J. Thompson and Lloyd E. Watts. Discussion by Drs. Abraham Myerson, Esther Tietz and Charles F. Read.

The Dynamics of the Cranio-Vertebral Cavity, by Drs. Abraham Myerson and Julius Loman. Discussion by Drs. Merle Q. Howard, Fish, and Abraham Myerson.

Observations on Gonadal Stimulating Substances From the Urine of Mental Patients in the Menopause, by Drs. Meyer M. Harris, Erwin Brand, Leland E. Hinsie and Richard Block. Discussion by Dr. James M. Robbins.

Heat Regulation in Dementia Præcox—Reactions of Patients with Dementia Præcox to Cold, by Drs. Isidore Finkelman and Mary Stephens. Discussion by Drs. Sylvester R. Leahy, Morgan B. Hodskins, Charles F. Read, A. B. Mangus and Isidore Finkelman.

THURSDAY AFTERNOON SESSION, MAY 16, 1935.

President-Elect Cheney presiding, Dr. Hutchings also acting as Chairman.

Infantile Amaurotic Family Idiocy with Megalocephaly and Cerebellar Atrophy, by Drs. Albert T. Steegmann and Louis J. Karnosh. Discussion by Drs. Beverly R. Tucker, A. L. Skoog and Albert T. Steegmann.

An Unusual Case of Self Mutilation, by Dr. Jacob Cohen. Discussion by Dr. William M. Bevis.

Psychoses with Pernicious Anemia, by Dr. Karl M. Bowman. Discussion by Drs. Henry Tiebaut, A. B. Mangus, L. E. Schneider, Lloyd H. Ziegler, Paul Schilder and Karl M. Bowman.

The Analysis of Ideologies As a Psycho-Therapeutic Method, Especially in Group Treatment, by Dr. Paul Schilder. Discussion by Drs. James L. McCartney, Simon Rothenberg and Paul Schilder.

Psychiatric Studies in Medical Education, by Drs. Edward A. Strecker, Kenneth E. Appel, Harold D. Palmer and Francis J. Braceland. Discussion by Drs. Alfred B. Olsen, John A. Dillon, Joseph Hughes and C. O. Cheney.

FRIDAY MORNING SESSION. MAY 17, 1935.

Dr. Arthur R. Noyes presiding, Dr. Samuel W. Hamilton later acting as Chairman.

Clinical Observations on the Personalities of Transients and Their Reactions to Unemployment, by Drs. Herman Shlionsky, Paul W. Preu and Milton I. Rose. Discussion by Dr. Paul W. Preu.

Experimental Induction of Infantile Behavior in Two Cases of Major Hysteria, by Drs. Robert R. Dieterle and Edward J. Koch. Discussion by Drs. James H. Huddleson, Albert M. Barrett, William W. Graves, Sarah R. Kelman, John D. Reichard, Benjamin Karpman and Robert R. Dieterle.

Functional Neuropsychiatric Syndromes Corrected by a Combination of Suggestive Therapy and Deep Hypnosis with Drugs, by Dr. Andrew L. Skoog. Discussion by Drs. Ira M. Altshuler and Andrew L. Skoog.

Problems of Convalescence, by Dr. Helen Flanders Dunbar. Discussion by Drs. William W. Graves, Louis A. Schwartz and Helen Flanders Dunbar.

SECTION III. THURSDAY MORNING SESSION, MAY 16, 1935.

Dr. Samuel W. Hamilton presiding, Dr. Adolf Meyer and Dr. Wm. Malamud also acting as Chairmen.

Lipoids in Manic-Depressive Psychosis, by Dr. Edwin F. Gildea. Discussion by Drs. Roy G. Hoskins, William Malamud, L. A. Schwartz and Edwin F. Gildea.

Psychogenic Factors in the Polyuria of Schizophrenics, by Dr. Wilbur R. Miller. Discussion by Drs. Roy G. Hoskins, William Malamud, Theodore R. Robie and Wilbur R. Miller.

The Hematoporphyrin Treatment of Depressive Psychoses, by Dr. Leslie R. Angus. Discussion by Drs. Robert B. McGraw, Charles Englander, Charles F. Read, Harold D. Palmer and Leslie R. Angus.

THURSDAY AFTERNOON SESSION, MAY 16, 1935.

Dr. William Malamud presiding, Dr. Leland B. Alford also acting as Chairman.

Motivation of Neuroticism, by Dr. William S. Sadler.

The Scientific Contributions of Dr. E. E. Southard, An Appreciation After Twenty Years, by Dr. Leland B. Alford. Discussion by Drs. Harold I. Gosline and Louis A. Lurie.

Functional Psychosis in Children—An Analysis of the Functional Psychoses Observed in a Group of One Thousand Problem Children Studied at the Child Guidance Home, by Drs. Esther Tietz, Jack Hertzman and Louis A. Lurie. Discussion by Drs. Albert S. Guibord, James Lewald, S. Alan Challman and Louis A. Lurie.

Studies in Obsessive Ruminative Tension States III. The Effect of Erratic Discipline in Childhood on Emotional Tensions, by Dr. Lawrence F. Woolley. Discussion by Drs. Phyllis Greenacre, Jacob H. Conn, George Lott and Lawrence F. Woolley.

Euthenics, by Dr. Harland W. Long. Discussion by Drs. Benjamin Karpman, Theodore R. Robie, M. M. Grover, Harland W. Long and M. M. Grover.

ROUND TABLE DISCUSSIONS.

THURSDAY EVENING, MAY 16, 1935.

CRIMINOLOGY.

Moderator: Dr. Vernon C. Branham.

EDUCATION WITH PSYCHIATRY.

Moderator: Dr. Victor V. Anderson.
Discussants: Drs. Frederick L. Patry, George S. Stevenson and others.

FAMILY CARE.

Moderator: Dr. Charles E. Thompson.
Discussants: Drs. Horatio M. Pollock, William C. Sandy and others.

OCCUPATIONAL THERAPY.

Moderator: Dr. Dexter Bullard.
Discussants: Dr. William R. Dunton, Jr. and others.

PSYCHIATRIC NURSING.

Moderator: Dr. Ross McC. Chapman.
Discussants: Dr. Mortimer W. Raynor and others.

PSYCHOANALYSIS IN MENTAL HOSPITALS.
TO WHAT EXTENT IS IT PRACTICAL?

Moderator: Dr. Richard H. Hutchings.
Discussants: Drs. William L. Russell, A. A. Brill and others.

PSYCHOPATHOLOGY.

Moderator: Dr. William Malamud.
Discussants: Drs. Adolf Meyer, Paul Schilder, Frederick Lyman Wells, Harry Stack Sullivan and others.

RESEARCH IN STATE HOSPITALS.

Moderator: Dr. Nolan D. C. Lewis.
Discussants: Drs. Jacob Kasanin, Clarence M. Hincks, Leland E. Hinsie, Roy G. Hoskins, Abraham Meyerson, Charles F. Read, Arthur H. Ruggles and others.

THE STAFF CONFERENCE.

Moderator: Dr. Arthur P. Noyes.
Discussants: Drs. C. Macfie Campbell, Henry O. Colomb, Lawrence F. Woolley and others.

VETERANS' ADMINISTRATION PROBLEMS.

Moderator: Dr. Appleton H. Pierce.

WILLIAM C. SANDY, *Secretary-Treasurer.*

REPORTS OF COMMITTEES.

The following reports of committees and of the Secretary-Treasurer were presented to the Association and approved by it during the Convention sessions in Washington, D. C., May 13 to 17, 1935.

Report of the Executive Committee.

The President, Secretary and Executive Assistant met with the Chairman of the Committee on Arrangements at the Hotel Mayflower, Washington, D. C., on September 19, 1934, for a further consideration of the proposed arrangements with the management of the hotel previously under discussion by correspondence. The facilities of the hotel and the plans were carefully reviewed and found satisfactory. The dates May 13 to 17 were reserved for the 1935 meeting.

In October, 1934, the Executive Committee authorized the transfer of the Association accounts from the Corn Exchange Bank to the Chase National Bank.

At the invitation of the Attorney General of the United States, the President designated Drs. White, Branham and Overholser as official delegates to the Conference on Crime in Washington, D. C., November 13, 1934.

On the afternoon and evening of December 28, 1934, the Executive Committee with the members of the Council met at the Hotel Commodore, New York. There were also present the chairmen of the various committees.

In the absence of the President, due to illness, Dr. Clarence O. Cheney, the President-Elect, presided. The meeting was called to order at 2.30 p. m., the first business being the preliminary reports of the chairmen of the various committees.

Dr. J. Allen Jackson of the Committee on Hospitals discussed the desirability for a restatement of the principles and policies governing mental hospital administration and the community activities in behalf of mental health conducted under the auspices of the hospitals. He pointed out that such a declaration of principles should come from The American Psychiatric Association which should take a definite lead especially in view of the interest manifested by the American Medical Association and various other health agencies.

Dr. Arthur P. Noyes of the Committee on Standards and Policies reminded the Council that his committee several years ago adopted the minimum standards for mental hospitals which continues to be the official standard of the Association. The committee has recommended a survey of mental hospitals to ascertain the situation as to the hospitals of the United States and Canada but no funds have as yet been available for this purpose.

In the general discussion, it was recognized that there may very likely be an overlapping in the interests of the Committee on Hospitals and the Committee on Standards and Policies and that possibly these committees should confer as to the particular topics they might discuss in their reports for this year.

Dr. James V. May of the Committee on Nomenclature and Statistics pointed out the difficulty in outlining the content of the proposed report in advance of any meeting of the committee. He invited the attention of the Council, however, to the following: (1) The publication in September, 1934, of the revised Statistical Manual for hospitals for mental diseases in accordance with the approval of the Association. (2) The publication in August, 1934, of the revised Statistical Manual for the use of institutions for epileptics. (3) The general decennial census of institutions taken by the U. S. Census Bureau in 1933 and not yet published. (4) The publication of the second edition of "A Standard Classified Nomenclature of Disease," which, of course, includes the official classification of The American Psychiatric Association. (5) The relation of the U. S. Census Bureau to institutions and states in the collection of institution statistics.

Dr. May moved and it was carried, that the Association through the Secretary communicate with the Director of the U. S. Census recommending that he urge the responsible authorities of each state to develop a system of reporting such statistical information to the Census Bureau, designating some official to see that this cooperation is brought about and stating that The American Psychiatric Association will be glad to support him in these requests.

In the general discussion, the need for a classification of children's problems was stressed and upon motion of Dr. May, the Secretary was instructed to request the subcommittee, of which Dr. C. Macfie Campbell is chairman, to make a further study of this subject.

In the absence of Dr. Potter of the Committee on Outpatient and Social Service, Dr. Cheney stated the committee had in mind a more definite formulation as to the importance of utilizing mental hospitals and outpatient clinics as training centers for social workers.

Dr. Samuel W. Hamilton of the Committee on Program reported progress with more than enough material already available for a complete program. Due to the interest and energy of Dr. Bruetsch, it is hoped to have more scientific exhibits. There will also be a number of commercial exhibits. Dr. White has under consideration the question of general entertainment.

Dr. Daniel H. Fuller, of the Committee on Psychiatric Nursing and Therapy, stated that he had been recently approached by the Chairman of the Committee on Nursing of the National League of Nursing Education, a fund of about $1500 having been made available using which the committee planned to visit a number of mental hospitals for the purpose of learning more about training schools conducted by such institutions. The Committee of the League wishes to select someone to make this survey who would be acceptable to The American Psychiatric Association. They would also like to have suggestions as to the hospitals to be visited.

After much discussion, on motion of Dr. Burlingame duly seconded, the Council approved of Dr. Fuller's acting in cooperation with the National League of Nurses Education in selecting a proper person to make the survey of mental hospitals.

Dr. Clifford B. Farr, Committee on Research, reported approval of the proposed round table on "Problems of Research and Teaching in Medical Schools" as suggested by the Chairman of the Program Committee. He mentioned in this connection the research in "Suicide" that is now being carried on by Dr. Zilboorg of his committee. Dr. Farr suggested as a committee project at no great expense, the listing of contributions to current psychiatric literature according to institutions with which the authors are connected, whether members or not, for reference purposes.

Dr. C. C. Burlingame of the Committee on Public Psychiatric Relations reviewed the work of his committee at the 1934 meeting in New York and requested an appropriation of $500 for use of the committee between now and the Washington meeting. He also recommended that the name of the committee be changed to "Committee on Public Psychiatric Education" as more descriptive of its activities and scope.

In the discussion of the name of the committee it was pointed out that the proposed name would possibly be confusing inasmuch as there is already a "Committee on Psychiatry in Medical Education." On motion of Dr. Russell, the Council approved that the committee shall hereafter be called "Committee on Public Education." It was further moved, duly seconded and carried, that an appropriation of not more than $500 be made available for the use of the Committee on Publication Education between now and the end of the meeting in Washington.

The Secretary-Treasurer reported about activities and the financial status of the Association since the New York meeting. As recommended by the Council, a circular letter was sent to hospitals throughout the United States and Canada calling attention to the desirability for membership in the Association and requests for 77 application forms have been received.

The Executive Assistant reported as to preparations for the Washington meeting.

Dr. Farrar as Editor of the AMERICAN JOURNAL OF PSYCHIATRY presented for consideration the question of an index of the 90 volumes of the JOURNAL. Dr. Dunton, authorized to study the material already in hand has made a report, a summary of which was sent to the members of the Executive Committee.

In the general discussion, the value of an index from an historical point of view alone was recognized but the expense appeared to be prohibitive unless financial assistance might be obtained. It was recommended that possible sources of financial assistance be investigated.

The petition of Dr. Bryan of Massachusetts and his co-signers for the establishment of a Section on Administrative Psychiatry presented to the Council on May 31, 1934, and referred to the Executive Committee was again brought up for consideration.

Several members of the Council spoke in behalf of the proposed new section. In view of the possible complications and difficulties which would result by reason of further sections especially at the annual meetings, it was voted to defer final action until the next meeting of the Council.

It was further voted that a special committee be formed to study and define the scope of a section on Administrative Psychiatry, with a reconsideration of the whole question of sections in general.

Subsequently, the President reappointed the committee which formulated in 1934 the regulations governing sections, consisting of Dr. Arthur P. Noyes, Chairman; Dr. James V. May; and Dr. William L. Russell.

Upon motion of Dr. Burlingame, seconded by Dr. May, the Council voted to increase the salary of Miss Dorothy Rubenstein, Secretary of the Executive Assistant, from $80 to $100 a month.

Upon motion of Dr. Collier, seconded by Dr. May, Mr. Austin M. Davies was continued as Executive Assistant at his previous salary.

It was voted upon motion of Dr. May, seconded by Dr. Inch, that a registration fee of one dollar ($1.00) be required of all guests and non-members at the Washington meeting.

The need for more adequate quarters for the New York office of the Association was considered, there being, for instance, no space for convenient storage of records. The Council voted that a special committee consisting of Dr. Cheney and Dr. Burlingame should investigate possible quarters in the Academy of Medicine or elsewhere.

Dr. Burlingame discussed the proposed award annually of the Thomas W. Salmon medal to the person who has achieved outstanding accomplishment in the field of psychiatry. It is proposed that The American Psychiatric Association shall select the one to be so honored and a resolution to that effect was passed by the Salmon Memorial Committee which will give the medal to be awarded.

It was voted that a special committee, with Dr. Cheney as Chairman, should confer with the Thomas W. Salmon Memorial Committee of the Academy of Medicine in regard to the offer of the medal.

The meeting adjourned at 6.30 p. m.

Respectfully submitted,

C. F. WILLIAMS, M. D., *Chairman,*
Executive Committee.

REPORT OF THE SECRETARY, 1934-35.

The following is a statement of the membership of The American Psychiatric Association as of May 1, 1935.

HONORARY MEMBERS.

Former number	19	
Died	2	
Present number		17

LIFE MEMBERS.

Former number	56	
Fellows to Life Members	7	
Total		63
Died		6
Present number		57

CORRESPONDING MEMBERS.

Former and Present number	4

FELLOWS.

Former number	889	
Members to Fellows	12	
Total		901
Fellows to Life Members	7	
Resigned	7	
Dropped	14	
Died	24	
Total		52
Present number		849

MEMBERS.

Former number	542	
Elected	103	
Reinstated	4	
Total		649
Members to Fellows	12	
Resigned	4	
Dropped	4	
Died	6	
Total		26
Present number		623

ASSOCIATE MEMBERS.

Elected 1934	37

TOTAL MEMBERSHIP.

Honorary	17	
Life Members	57	
Corresponding Members	4	
Fellows	849	
Members	623	
Associate Members	37	
Total membership May 1, 1935		1587
Total membership May 25, 1934		1510

WILLIAM C. SANDY, M. D., *Secretary.*

REPORT OF TREASURER.

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

FROM MAY 16, 1934, TO APRIL 30, 1935.

Total Balance, May 16, 1934		$26,553.78
Receipts.		
Dues from Members	$11,733.75	
Refunds—1934 Convention	64.00	
Exhibits—1934 Convention	360.00	
Exhibits—1935 Convention	397.50	
Refunds—Meeting Expenses and Committee Expenses	38.38	
Premium on Canadian Exchange	1.79	
Interest—Savings Accounts	656.17	
Refund—Committee on Arrangements—1934 Convention (Deposited in Bank for Savings)	685.17	
Total Receipts		13,936.76
		$40,490.54

Disbursements.

Executive Assistant	$3,000.00	
Clerical Salaries	1,020.00	
Programs—1934 Convention	530.90	
Reporting—1934 Convention	473.68	
Dewey's Journal	313.27	
JOURNAL OF PSYCHIATRY	4,667.96	
Meeting Expenses, Trips and Committee Expenses	934.05	
Directory—Members	524.00	
Printing and Stationery	408.07	
Postage	376.65	
Bond—A. M. Davies	50.00	
Returned Checks	20.00	
Sundry Expenses	23.22	
Accounting	40.00	
Badges—1934 Convention	39.49	
Total Disbursements		12,421.29
Total Balance, April 30, 1935 (see Schedule)		$28,069.25

SCHEDULE OF BANK BALANCES, APRIL 30, 1935.

	Account No.	Balance
Chase National Bank		$2,102.24
Bank for Savings	1,324,532	3,348.24
Union Dime Savings Bank	1,115,779	6,098.65
Emigrant Industrial Bank	137,048	8,264.75
Bowery Savings Bank	258,266	8,255.37
Total		$28,069.25

Total Cash Resources.

American Psychiatric Association (as above)	$28,069.25
AMERICAN JOURNAL OF PSYCHIATRY	2,758.18
Total	$30,827.43

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FROM MAY 16, 1934, TO APRIL 30, 1935.

Bank Balance, May 16, 1934	$3,015.37

Receipts.

Income from Subscriptions	$7,595.72	
Reprints	765.47	
Back Numbers	75.47	
Advertising	1,432.18	
Total Receipts		9,868.84
		$12,884.21

Disbursements.

Printing	$8,690.80	
Editorial Assistance	844.22	
Typewriter	107.41	
Postage	152.55	
Telephone and Telegraph	199.24	
Traveling Expense (Dr. Dunton's trip)	17.75	
Shipping Expenses	78.82	
Miscellaneous Expenses	35.24	
Total Disbursements		10,126.03
Bank Balance, April 30, 1935		$2,758.18

WILLIAM C. SANDY, M. D., *Treasurer.*

REPORT OF THE AUDITING COMMITTEE.

We, your auditors, respectfully submit to you our report of the financial status of the Association as of May 3, 1935.

The certified accounting firm of Mr. A. A. Turoff of New York City, employed in accordance of the resolution of the Association in 1933, has examined the books of the Secretary-Treasurer and submitted a detailed report dealing separately with the accounts of The American Psychiatric Association and the AMERICAN JOURNAL OF PSYCHIATRY.

This report herewith submitted has been examined by us, approved and adopted as the report of the committee. The same is respectfully referred to you for your action thereon.

HUGH C. HENRY, M. D., *Chairman.*
MORTIMER W. RAYNOR, M. D.,
ALBERT C. BUCKLEY, M. D.

May 14, 1935.

"May 3, 1935.

"*Mr. Austin M. Davies, Executive Assistant, American Psychiatric Association, 50 West 50th Street, New York City.*

"DEAR SIR:

"As per your request, we have made an examination of the books and records of The American Psychiatric Association and the AMERICAN JOURNAL OF PSYCHIATRY.

"We present in connection with this audit, the following statements which are in accordance with the books and which reflect the cash transactions for the period under review:

"*1. Statement of Cash Receipts and Disbursements for The American Psychiatric Association for the period May 16, 1934, to April 30, 1935.

"*2. Statement of Cash Receipts and Disbursements for the AMERICAN JOURNAL OF PSYCHIATRY for the period May 16, 1934, to April 30, 1935.

"In connection with the audit of the records, our work consisted in checking all deposits from the bank statements to the cash book, verification of footings in books of account, bank reconciliations as of April 30, 1935, and analysis of cash receipts and disbursements, and checking all vouchers for such payments.

"Should you desire any more detailed information upon any item in this report, please do not hesitate to call upon us.

"Respectfully submitted,
"TUROFF AND GOLDSTOCK,
"*By* A. A. TUROFF,
"*Certified Public Accountant.*"

* NOTE.—These statements were used as the basis for the report of the Treasurer and appear in the foregoing report as submitted by the Certified Public Accountant.

REPORT OF THE EXECUTIVE ASSISTANT.

In addition to the report made before the Council at the December, 1934, meeting, the Executive Assistant herewith respectfully submits a summary of the activities of this office during the past year.

The financial statement of this office shows that it is gradually becoming more self-supporting in spite of increased expenditures. The income from exhibits, which is included in our financial statement, is being applied to the expenses of running the annual meeting.

A saving of $100.00 was made on the printing of the List of Fellows and members and arrangements were made whereby the printer is to hold the setup for the next two years. This will result in further savings. The final program for the annual meeting runs 82 pages as compared with 72 pages of the 1934 program. We are happy to report that we have been able to secure this increased program for $30.00 less than last year.

Even though the membership has increased, the number of three-year delinquents has remained the same as last year and the number of two-year delinquents has decreased as compared to last year. The collections on subscriptions and advertising on the JOURNAL has also improved.

New advertising to the amount of $448.56 was secured during the past year. Our advertising program, we believe, now has a solid foundation and, if business conditions improve, we should receive an increased income from this source.

We hope to advance the date of publishing the List of Fellows and members so that the annually elected officers will appear in the directory for their full period of office. We have made an attempt to improve the directory by attaching to the membership invoices a slip requesting corrections. This has not only aided the directory but has contributed to the prompt payment of dues. We welcome, however, any suggestions that might result in having the directory more accurate.

An innovation this year has been the mailing of letters to members explaining that they can apply for Fellowship provided they meet the requirements. This has resulted in receiving 141 applications for change in standing from membership to Fellowship. We have again assisted the Board of Examiners in abstracting the application blanks. In addition to the application blanks for Fellowship standing, some 190 applications for new membership have been received.

One of the most important functions of the Executive Assistant this year has been the financing of the annual meeting without having the Committee on Arrangements raise funds from local members. By action of the Council at the December meeting, it was decided to charge a registration fee of $1.00 for all non-members but no registration fee for members. It is hoped that the income from the registration fee and from the sales of commercial exhibits will offset all the costs of the 1935 annual meeting.

REPORT.

May 16, 1934–May 1, 1935.

INCOME

New Business

New Subscriptions (76)	$456.00	
New Advertising (including $250.04 due)	448.56	
Advertising Renewals (up to Vol. 91, No. 4)	1233.66	
Due on Advertising (up to Vol. 91, No. 5)	202.21	
Total		$2,340.43

DISBURSEMENTS

Office Expense

Telephone and Telegraph	$199.24	
Office Supplies	22.54	
Postage	152.55	
Miscellaneous Expense (including $107.41 for L. C. Smith Typewriter)	226.28	
Printing (letterheads, envelopes, etc.)	85.69	
Dorothy Rubenstein—Salary (10 months)	1180.00	
Austin M. Davies—Salary (one year)	3000.00	
Total		$4,866.30

AUSTIN M. DAVIES,
Executive Assistant.

May 1, 1935

Report of the Committee on Hospitals.

Your committee believes that it can best serve the Council by presenting certain pertinent facts concerning the present status of mental hospitals throughout the United States and Canada; the relation of The American Psychiatric Association to these hospitals; and the further need of a declaration of principles on the part of The American Psychiatric Association as to what constitutes at this time the essentials in a national mental health program and the function and essential needs of mental hospitals in cooperating with such a program.

PRELUDE.

The history of the development of the mental hospital from its earliest incipiency, the varied and many political policies of the various branches of federal, state, county and municipalities governing these hospitals, all of which resulted in hospitals of various types and standards throughout the United States, are well known to the Council. Likewise, the Council is fully aware of the disastrous trends in the past resulting from world wide economic crises, on such structures and cannot fail to visualize the position in which the hospitals find themselves in the present economic crisis.

RELATION OF THE AMERICAN PSYCHIATRIC ASSOCIATION.

The American Psychiatric Association has always stood between these hospitals and political and financial disasters. This Association founded by the superintendents of mental hospitals in the United States and Canada had but one thought in mind—in unity there was strength; strength in the exchange of knowledge; strength that comes through research, study and investigation; strength built upon a unification of the best ideas. The American Psychiatric Association to-day stands before the world as a unit composed of a federation of ideals, knowledge and purpose. It is to The American Psychiatric Association that the world looks for leadership in the care and treatment of the mentally ill, particularly, in economic stress, in times of peace or in times of war. Your committee can give no greater citation of the leadership of The American Psychiatric Association than its declaration of certain principles governing professional and treatment standards in mental hospital administration. This declaration of principles has been the guide and criteria for surveys, committees, trustees and superintendents in hospital administration from the date of its declaration to the present day.

Your committee feels, however, that during this economic crisis when the world (again) looks to leadership, The American Psychiatric Association should again issue a declaration of principles governing mental hospital administration. Its past declaration of standards concerns but one of the foundations on which rests good hospital administration, to wit: professional and treatment agencies. Equally important, however, is a declaration concerning: political plans and policies governing the mentally ill, the mental

hospitals and recommending such changes in laws necessary thereto to ensure a more uniformity of consideration and care throughout the United States and Canada; the function of a mental hospital, intra and extra, and its community relationship; the essential buildings comprising a hospital unit and the percentage of groups to be treated; essential administrative schemes of organization and personnel, other than the truly professional personnel; and the scope and essentials in intra and extra diagnostic treatment services.

The rôle of the state hospital is too closely linked with the mental health of the community, state and nation to meet with disaster. Retrenchments, no doubt, will have to be made in certain directions. In making retrenchments, however, it is absolutely essential that there be a line of demarcation and this line can best be determined under the leadership of The American Psychiatric Association.

OTHER INTERESTED BODIES.

While due tribute has been paid to the leadership of The American Psychiatric Association, your committee is not unmindful that other bodies in more recent years have become particularly interested in the problem of mental health. In this respect one cannot overlook the National Mental Hygiene Committee which has created a national and international interest in mental hygiene. Likewise, the interest of the American Medical Association, the American Association on Mental Deficiency, the American Bar Association, the American Association of Social Workers, and the American Psychological Association, is outstandingly obvious.

Under the leadership of The American Psychiatric Association, representative committees from all those associations might best formulate these broad and far-reaching policies concerning mental health problems and the care of the mentally ill.

The task does not assume Herculean aspects when one considers that vast material already accumulated by these respective associations. In the interim, the various committees of The American Psychiatric Association might be thinking in terms of definite standards as guiding principles for the promotion of mental health and the care of the mentally ill throughout the United States and Canada.

RECOMMENDATIONS.

1. Your committee recommends that The American Psychiatric Association lend its efforts to bringing about a meeting of representative committees of all national bodies in the United States and in Canada, interested in mental health problems, for the purpose of best formulating principles and far-reaching mental health policies in the care of the mentally ill.

2. Your committee recommends that the mental hospitals in the United States and in Canada should strive to uphold, in so far as possible, the standards and policies already adopted by The American Psychiatric Association.

3. Your committee recommends that the mental hospitals in the United

States and in Canada, aside from their function of research, training, diagnostic and treatment agencies, assume a very definite relationship to the mental health problems of their respective hospital districts.

4. Your committee recommends that mental hospitals, in carrying out this community relationship, should give due regard to the physician-patient relationship as emphasized by the American Medical Association. Such community relationship should be established with the approval of the local county medical society.

5. Your committee recommends that mental hospitals should encourage a greater interest on the part of the general practitioners of medicine in mental health problems through post-graduate courses, staff meetings and clinics. The practitioner ought to be sent reports and progress notes on the patients he has referred to the hospital. He ought to be urged to visit these patients in the hospital and to assume in cooperation with the hospital a relationship to the patient during his furlough period from the hospital.

Respectfully submitted,

J. Allen Jackson, M. D., *Chairman*,
G. Kirby Collier, M. D.,
Mortimer W. Raynor, M. D.,
William C. Garvin, M. D.,
Appleton H. Pierce, M. D.,
Eugene Kahn, M. D.,
Ira A. Darling, M. D.,
Arthur G. Lane, M. D.,
W. T. B. Mitchell, M. D.,
Ransom A. Greene, M. D.

Report of the Committee on Legal Aspects of Psychiatry.

The Committee on the Legal Aspects of Psychiatry herewith respectfully submits its tenth annual report.

During the past year the cooperative activities between the committees of the American Bar Association, the American Medical Association, and this committee have continued. A joint meeting was held on April 27, 1935, but unfortunately at the last minute representatives of this committee were unable to attend.

At the meeting, attention was directed to the problem of the petty offender. It was decided not to attempt to go into this matter at the present time, but that the central topic of the 1936 meeting of the cooperating committees will be the problem of the municipal, police, or similar court which deals with petty offenses (as distinguished from felonies) and petty offenders (as distinguished from those accused of felonies). The exact scope of the topic can hardly be defined at the present stage of our knowledge of the facts; but in general the problem we have in mind is the improvement of the methods of said courts in dealing with the petty offenders, including the possibilities by

way of the use of psychiatric, social case work, and similar techniques, for bringing about a more intelligent treatment of the petty offender than is now customary, and for discovering and treating the potential major offender by methods which might lessen the development of progressively criminal careers.

It was suggested that it be recommended to the various bodies concerned that they expressly assign this topic to the committees appointed for the year 1935-1936, with the understanding that by individual research and correspondence the members of the committee may acquaint themselves with the available information pertinent to this problem prior to the joint meeting next year.

The spirit of cooperation between the legal and the medical professions continues to manifest itself. At the Attorney General's conference on crime held in Washington early in December, 1934, Dr. White, the Chairman of this committee, presented an address, entitled, "The Judicial *vs.* the Administrative Process," in which considerable attention was devoted to the psychiatric aspects of law enforcement.

A joint meeting of the New York Neurological Society and the New York Academy of Medicine took place in November, 1934, at which a general discussion on psychiatry and the criminal law was held—Dr. Bernard Glueck of this committee presenting the psychiatric aspects, being followed by Professor Jerome Michael of Columbia Law School on the legal aspects.

It should be recorded, in connection with the report of this committee, that the Section on Forensic Psychiatry and Conduct Disorders held a session at the 1934 meeting of the Association which was largely attended and in which considerable interest was displayed by the audience. The committee once again calls to the attention of the Association the possibility of consolidating the activities of this committee and the section. At the present time, this is rather effectively done by the fact that the Chairman and the Secretary of the committee and of the section are the same individuals. As a matter of administration it might be considered that the section might take over the activities of a standing committee when the activities of the two are essentially identical.

During the year there have been relatively few legislative developments which have come to the attention of the committee. At the 1934 session of the New York legislature, Senate Bill 979 was introduced and would have authorized the appointment of experts by the Court. This bill failed of passage. In the New Jersey Legislature, Assembly Bill 115 would have authorized the appointment of experts by the Court, together with limitation of the fees to be paid to them. This bill likewise failed of passage. At the present time, a bill is pending before the New York Assembly which would modify the present conduct of the Lunacy Commission. It contains the elementary proviso that at least one member of the commission shall be a qualified psychiatrist.

In closing, the committee wishes to express to the committees of the American Bar Association and the American Medical Association its appreciation of their continued cooperation and interest.

WILLIAM A. WHITE, M. D., *Chairman,*
V. C. BRANHAM, M. D., *Secretary,*
LEROY M. A. MAEDER, M. D.,
BERNARD GLUECK, M. D.,
WILLIAM HEALY, M. D.,
MENAS S. GREGORY, M. D.,
JOSEPH W. MOORE, M. D.,
HERMAN ADLER, M. D.,
WINFRED OVERHOLSER, M. D.,
RAYMOND F. C. KIEB, M. D.

MINUTES OF THE JOINT MEETING HELD IN THE STEVENS HOTEL IN CHICAGO, ON SATURDAY, APRIL 27, 1935.

(By request, included in report of Committee on Legal Aspects of Psychiatry.)

Present:

American Medical Association:
Dr. H. Douglas Singer, Chicago, Illinois.
American Neurological Association:
Dr. Lewis J. Pollock, Chicago, Illinois.
American Bar Association, Criminal Law Section:
Mr. Alfred Bettman, Cincinnati, Ohio.
Mr. Louis S. Cohane, Detroit, Michigan.
Mr. Rollin M. Perkins, Iowa City, Iowa.

Members of the committee representing The American Psychiatric Association were unable to be present because of conflicting engagements.

The session opened with the consideration of a resolution which was being drafted for submission to the American Bar Association, in furtherance of the position taken by the cooperating committees in their joint meeting in Washington, in May, 1934. The following is the form agreed upon:

WHEREAS, Scientific knowledge of disorders of the mind and of the part such disorders play in tending to cause anti-social conduct represents a vast and intricate field which is constantly growing;

AND WHEREAS, Insanity as a defense in the field of the criminal law has been abused, resulting in a miscarriage of justice by the complete and unconditional release of defendants who were either completely or partially responsible and who should have been kept either in prison or in an institution where they could be given proper care;

AND WHEREAS, It is obvious that a lay jury is incompetent to deal with the highly technical and scientific subject of insanity except perhaps in its most extreme form;

AND WHEREAS, There seems to be much confusion of thought upon this subject as represented by a criticism of the courts for not taking sufficient notice of disorders of the mind of a less obvious nature in the trial of a criminal case, coupled with a criticism of the law for leaving this difficult problem to be solved by 12 persons who have no training or experience in this field;

AND WHEREAS, It is impossible to remove entirely the insanity defense from the lay jury by reason of constitutional limitations, and yet it is advisable to limit insanity as a defense to the most extreme forms and to leave any less obvious forms of disorder of the mind to be considered after conviction by the court and other authorities as a circumstance indicating necessity for special and appropriate care and treatment of the offender;

AND WHEREAS, The law and the administration of justice should take advantage of the important contributions of science in the field of disorders of the mind in analyzing and counteracting tendencies toward anti-social conduct,

Now, Therefore, Be It Resolved, by the American Bar Association that it is desirable to keep within rather narrow limits the kind and degree of disorders of the mind which will entitle the defendant in a criminal case to an acquittal, and to readjust the machinery after the point of conviction to the end that disorders of the mind which are not sufficient for an acquittal may result in treatment other than that provided for persons who are not mentally disordered.

It was also decided to submit the following resolution to the Section of Criminal Law, of the American Bar Association:

WHEREAS, It is necessary to emphasize the vital importance of adequate treatment for convicted felons looking toward reform and also toward recognition and treatment of disorders of the mind with a view to their return to society no longer constituting repeaters and social menaces;

AND WHEREAS, In many penitentiaries inadequate treatment of the convicted by way of discipline and punishment instead of correction and reform results in their return to society as hardened criminals, embittered, revengeful, and likely to continue to engage in criminal activities,

Be It Resolved, That the Section of Criminal Law direct the consideration of the people of the United States to the resolutions passed by the American Bar Association in 1929 and also passed by the American Medical Association and The American Psychiatric Association, and we reaffirm the principles there stated as follows:

"That no criminal be sentenced for any felony in any case in which the judge has any discretion as to sentence *until there shall be filed as part of the record a psychiatric report.*

That there be a psychiatric service available to every penal and correctional institution.

That there be a psychiatric report of every prisoner convicted of a felony *before he is released.*

That there be established in each state a complete system of administrative transfer and parole *and that there be no decision for or against any parole or transfer from one institution to another without a psychiatric report.*"

Dr. Singer pointed out that in commitment proceedings the notice which is served upon the person whose mental condition is to be the subject of the inquiry is frequently quite harmful. He asked whether such notices are required. No vote was taken upon this problem, but it was informally suggested that, while some notice is necessary by reason of the constitutional safeguards of liberty, this requirement can be handled in a less objectionable manner than at present. It was mentioned that if the person concerned is at the time in a hospital, the superintendent could be appointed a deputy for the purpose of serving such notice and that he could convey the message in a tactful manner; and that upon affidavit of a psychiatrist that notice to the person concerned would be distinctly harmful, provision might be made authorizing service upon some other, such as a close relative.

Report of Committee on Nomenclature and Statistics.

To The American Psychiatric Association:

Your Committee on Nomenclature and Statistics in submitting its report for the year now drawing to a close records with pleasure the completion of the following projects which were under way at the time of the last meeting of the Association:

1. The revised Statistical Manual for Hospitals for Mental Disease was published in September, 1934, by the National Committee for Mental Hygiene. That this manual is generally recognized as an authoritative aid in diagnosis and classification is evidenced by the fact that over 2700 copies were sold within six months from the date of publication. The manual is widely used in medical schools as well as mental hospitals. The service rendered by the National Committee in the dissemination of this document is greatly appreciated by your committee.

2. A second, revised, edition of the book "A Standard Classified Nomenclature of Disease," which includes the official classification of The American Psychiatric Association, was issued a few months ago.

3. A revised edition of the Statistical Manual for the Use of Institutions for Epileptics was published in August, 1934. The revision was made for the committee by Dr. William T. Shanahan and Dr. Horatio M. Pollock.

4. General results of the decennial census of hospitals for mental disease taken by the Federal Census Bureau in 1933 were made available in February of this year. It is hoped that the complete report may be published within the calendar year of 1935.

The need of closer cooperation between the Census Bureau and the several states in the work of collecting data concerning hospitals for mental disease and institutions for mental defectives and epileptics has been called to the attention of the Council of this Association, and we are advised that our secretary has taken up the matter with the director of the Census Bureau. What is most needed is a cooperative system that will furnish adequate statistics to the authorities of each state and that will enable the Federal Census Bureau to compile and publish promptly annual data for the entire country.

As it has not been feasible for your committee to meet in advance of the annual meeting, no new projects have been considered.

Your committee again urges the superintendents of hospitals throughout the country to maintain in their own institutions and to support in every feasible way the standard nomenclature adopted by this Association and the uniform statistical system, which together place the statistics of mental disease in this country far above those of any other nation.

Respectfully submitted,

JAMES V. MAY, M. D., *Chairman,*
E. STANLEY ABBOT, M. D.,
C. MACFIE CAMPBELL, M. D.,
WALTER L. TREADWAY, M. D.,
WILLIAM T. SHANAHAN, M. D.,
CLARENCE M. HINCKS, M. D.,
RICHARD H. HUTCHINGS, M. D.,
ALBERT M. BARRETT, M. D.,
CLARENCE O. CHENEY, M. D.,
FRANKWOOD E. WILLIAMS, M. D.

REPORT OF SUBCOMMITTEE ON NOMENCLATURE AND CLASSIFICATION RELATING TO PERSONALITY DISORDERS IN CHILDREN.

The Subcommittee on the Nomenclature and Classification dealing with the personality disorders in children last year submitted a report to the Council in which it stated that in their opinion the time was not ripe for a classification of the personality disorders in childhood and that such a classification would neither be of scientific validity nor of practical value, but would be detrimental rather than beneficial.

The subcommittee in response to the recent request of the Council has reconsidered the question and again formulates the above conclusion, and recommends that work on these disorders be allowed to proceed at present unhampered by a standard classification.

Respectfully submitted,

C. MACFIE CAMPBELL,
Chairman of the Subcommittee.

May 14, 1935.

REPORT OF THE COMMITTEE ON NURSING.

The members of the Committee on Psychiatric Nursing record with deep sorrow the passing of our Chairman, Dr. Daniel H. Fuller, who died on February 1, 1935. A fine physician and a good friend, Dr. Fuller was a highly efficient Chairman of our committee, maintaining contact with our accredited schools, in the welfare of which he was deeply interested. He will be sorely missed by us all.

The committee takes note of the fact that its official name is given in the Handbook of the Association for the year as the "Committee on Psychiatric Nursing and Therapy." It recommends for obvious reasons that the last two words be elided and that the official name of the committee be the "Committee on Psychiatric Nursing."

In the report read before the Association a year ago it was noted that the Nursing Committee had conferred with members of the Committee on Nursing in Mental Hospitals of the National League for Nursing Education. These conferences have been continued during the past year and it is believed that they will be of mutual benefit. One result of these conferences has been the selection by your committee and the Committee on Nursing of the National League for Nursing Education of Miss Harriet Bailey, a nurse of broad experience, who is undertaking a survey of certain of our selected accredited schools. This action was approved by the Council at its meeting last December. The expenses of the survey are to be defrayed by the National League for Nursing Education. Miss Bailey has visited, or will visit, the following schools:

Taunton State Hospital, Taunton, Mass.
Cleveland State Hospital, Cleveland, Ohio.
Middletown State Homeopathic Hospital, Middletown, N. Y.
Allentown State Hospital, Allentown, Pa.
New Jersey State Hospital, Greystone Park, N. J.
McLean Hospital, Waverly, Mass.

We look forward to her report with much interest. On account of the expenses involved the committee has been unable to establish any plan for the inspection of our accredited schools. We have been dependent on the sending out of questionnaires for our information regarding our schools' progress. It is regarded by the committee as highly desirable that some actual inspection of these schools be provided for. There has, moreover, been no change in the Standard of Minimum Requirements for accredited nursing schools in mental hospitals since the establishment of these standards in 1923. The committee feels that during the coming year the Standards should be carefully studied with the end in view of making such revisions as seem desirable.

One school has applied for entrance to our accredited list, namely that at Highland Hospital, Asheville, North Carolina, a school which meets our requirements and which is on the list of approved schools of North Carolina. It is recommended that this school be accredited.

We have now on our accredited list 65 schools. The questionnaires this year were inevitably delayed in being sent out. They have been returned from 55 schools. From 10 schools we have had no reply. Two schools have been discontinued since our last meeting. The questionnaires so far received have been studied and tabulated but there has been no opportunity as yet to check on delinquents or to follow up in correspondence with certain schools leads suggested by their questionnaires. It does not seem wise until we follow up these special leads to arrive at definite conclusions as to the

schools. They appear, in the main, to be prospering. Based on 55 returned questionnaires the following interesting information is here set down:

Number of students admitted in 1934....Men, 287; women, 1573—total, 1860
Number of graduates in 1934.....Men, 91; women, 532—total, 623
Number of schools having courses for affiliating students..... 24
Number of schools having courses for postgraduate students..... 14
Number of schools having courses for attendants..... 39

The committee feels, as indicated in the report of Dr. Fuller last year, that the careful selection and instruction of attendants is of the highest importance. It is, I think, the general experience of hospitals that the efficiency of attendant service is higher than at any time in recent years, this on account of the hard times and the comparative ease with which those men and women of better character and intelligence and good background can be secured.

The committee is also decidedly of the opinion that our nursing schools in both public and private hospitals are important factors in the better care and treatment of patients and should be stimulated and encouraged.

Respectfully submitted,
R. M. CHAPMAN, *Chairman*,
M. W. RAYNOR,
GUY S. WILLIAMS,
ARTHUR P. NOYES,
HENRY I. KLOPP,
MARCUS A. CURRY.

REPORT OF COMMITTEE ON PSYCHIATRY IN MEDICAL EDUCATION.

Two very important steps have been taken this year:

(1) The establishment of a National Board of Examiners for recognition in psychiatry and in neurology, and (2) the acceptance of a more thorough preparation in psychobiology and psychiatry in the medical schools.

(1) While the American Board of Psychiatry and Neurology, Inc., is a unit, it recognizes qualification either in psychiatry or in neurology or in both. The board is made up of an equal number of examiners in psychiatry and in neurology, the two national associations and the Section of Nervous and Mental Diseases of the American Medical Association being represented each by four members. The psychiatrists examine the candidates in psychiatry and the neurologists those in neurology. For the granting of the diploma, the approval of the entire board is required. In the basic disciplines, the essential requirements are the same, but with special emphasis on special preparation. A prescribed amount of clinical training and experience in the main specialty and in the subordinated specialty are required, which calls for specification to be determined as the work of the board shapes itself. The board will begin with the standardization and recognition of physicians who graduated in or before 1919 and have been practicing the specialty for

at least 15 years; physicians in this group will be passed on their record. The group that graduated after 1919 and up to and including 1929 and have been practicing the specialties for at least five (or six years, if they apply for a diploma in both fields) will be required to pass an examination. In the main an apprenticeship training is expected with at least three years of supervised practical and theoretical training in a recognized center for the leading specialty, and at least an adequate amount of similar work in the subordinate branch; moreover, adequate experience is required in the normal anatomy and physiology and the pathological anatomy and physiology of the nervous system and in psychobiology and psychopathology. It will become necessary to define specifically what shall be the passing requirements of the type of courses and studies and the amount of proficiency demanded.

A report on the first series of examinations will serve to give definition to the requirements in the training, without undue regimentation. It should be possible to specify familiarity with a range of facts and of texts which will indicate the scope of the basic preparedness expected. Admission to the examination will require evidence of at least five years and, in case of the examination of the two branches, at least six years of work in the specialties.

The preparation interesting this association particularly will cover in neurology familiarity with the structure and experimental and clinical behavior of the segmental or reflex level, the cerebellar, midbrain and thalamus and striatal and cortical suprasegmental mechanisms. Psychobiology calls for an adequate understanding and practice in the requirements of a biographic setting and specific examination, in the normal and in patients, of the functions covered in a mental status and the evaluation and interpretation of the data; moreover, familiarity with the methods of examination and evaluation of the data elicited in intelligence and performance tests, and with the description and interpretation of special complaints and reaction sets and the principles of treatment; moreover, familiarity with the range of functions and problems of the successive periods of life (infancy, childhood, puberty, adolescence, adult and mature and senescent life), and with special situations and the reactions thereto. What will determine maturity for the diploma in one or the other or both fields will be the clinical and practical experience and the corresponding scope of training and experience in the fundamentals and in current researches and literature and a sound record of responsible practice.

(2) For the promotion of *undergraduate training*, efforts are being made to obtain a minimum number of hours in the curriculum throughout the four years of the medical course. In the existing medical schools, the provisions of staff and facilities vary considerably, and much help has to be offered to get a proper start commensurate with the available funds and personnel and organization. The preliminary training has to lay the common ground in work on the most normal and ordinary questions of human successes and failures as seen in normal and in special situations; including the most widespread personality problems and difficulties apt to occur in dealing with

persons in all domains of medicine; then in the part disorders and psychoneuroses, and finally in the psychiatric disorders in the narrower sense of the term. There has to be an understanding of the share of the person in the functioning of the digestive and other organs, of the endocrines, and the rôle of the part functions in total function or mentally integrated functioning; but there also is needed a sense for the personality adjustments and difficulties, and a foundation for some experience and understanding of what is possible with more or less specialistic methods and concepts, such as may have to be left to the specialist in the same sense as the average practitioneer must know what should and can be referred to the surgeon and other special workers who are expected to get special training in addition to what the average course brings to the student.

Special efforts can be made and should be made to bring the existing local and community provisions and state hospitals into practical use for undergraduate and graduate instruction and training. It is hoped that by encouraging the production of samples of district work the medical profession will become imbued with a sense for the opportunities available.

Efforts are made also to arrange conferences of the teaching personnel such as will put at the disposal of the rank and file of workers what various centers have come to develop.

It is to be hoped that the symposium on personality function will give samples and practical orientation as to the scope of the domain of the specialist's work, and that this report may receive discussion in the round-table discussions; and that ultimately an outline can be produced that may serve for orientation to be developed according to the available opportunities and talents in the various centers.

The Division for Psychiatric Education of the National Committee for Mental Hygiene, along with the Commonwealth Fund and other funds, deserves a great deal of credit for the promotion of the aims of our committee.

ADOLF MEYER,
E. A. STRECKER,
C. MACFIE CAMPBELL,
CLARENCE O. CHENEY.

REPORT OF THE COMMITTEE ON PUBLIC EDUCATION.

The active steps which the Association has taken in the matter of professional standards has called for reorganization of the old Committee on Publicity and the development by the Committee on Public Education of a somewhat different type of thinking.

This committee feels that in some respects its principal objective should be the re-education of the public by the gradual building up in the lay mind of a sensible and healthy conception of what psychiatry really is and what psychiatrists are trying to do.

During the past 15 years there has been an ever-increasing quantity of lurid material appearing in the public press regarding psychiatry, so that

it is not remarkable that the average layman to-day has a distorted understanding of this branch of medicine.

We do not feel it to be the duty of this committee to "popularize" psychiatry. That has already been done—perhaps too well. We believe that the real need at the present time is the elimination of emphasis on the spectacular and the substitution of a dignified and conservative exposition of what is being accomplished in the way of scientific investigation and solid accomplishment.

Newspapers are published for the purpose of entertaining and informing their readers but they cannot be charged, except incidentally, with the duty of education. We cannot blame the press, therefore, if some trivial but bizarre theme is bruited about in every newspaper while the truly scientific studies and reports are given scant notice. We can help ourselves however, by avoiding so far as we possibly can, the publication of spectacular and unconstructive material, or at least, not "pushing" material of doubtful value.

During the last meeting of the Association the public press was most cooperative and helpful in emphasizing certain matters of policy which were considered quite important from the standpoint of public education. We refer specifically to the widespread publicity given the able statement of Dr. Kirby regarding the place of psychoanalysis as a psychiatric agency, rather than a synonym for psychiatry, also, the necessity of taking psychoanalysis out of the hands of the dabbler and confining its practice to adequately trained physicians. Emphasis was also placed on the election of members by stressing the qualifications necessary for election by the Association.

A compilation of press clippings during that meeting, estimated not to exceed 50 per cent of actual coverage, showed that articles released by the committee were printed in 39 states, two Canadian provinces and in 183 different cities. In addition, there were 52 "local" releases printed concerning the individual speakers and newly elected members released exclusively to home town newspapers. The release on forensic psychiatry was printed in 131 newspapers throughout the country. Other papers, particularly the President's address received similar widespread notice.

Sooner or later the Association must turn its attention to the formulation of certain procedures and even regulations governing the public utterances of its members, taking our place in the family of scientific organizations where a dignified restraint is exercised. This becomes increasingly important now that we have entered into relations with the American Neurological Society and the American Medical Association in the formation of the Board of Examiners in Psychiatry and Neurology.

The broader responsibilities which have been assumed by this Association in the past few years would seem to preclude the possibility of our remaining mute throughout the year and articulate only during conventions. We are, therefore, with the approval of the Council, prepared to function throughout the year. In order to make this possible a modest appropriation has been made for the committee's work.

The committee looks forward to the coming year and hopes to continue its practice of stressing policies rather than any individual's views, and reiterates its wish to be available to the Association and its members at any time.

C. C. BURLINGAME, M. D., *Chairman,*
WILLIAM A. WHITE, M. D.,
OSCAR J. RAEDER, M. D.,
GEORGE H. STEVENSON, M. D.,
GEORGE K. PRATT, M. D.
Committee on Public Education.

REPORT OF THE COMMITTEE ON RESEARCH.

For geographical reasons no meeting of the Committee on Research has been held since the present Chairman was appointed, but one has been definitely arranged for Tuesday, May 14, 1935.

The Chairman was present at the December meeting of the Council, when he submitted a brief interim report and made a few suggestions as to the future activities of the committee.

On April 25, 1935, he attended the annual meeting of the Division of Medical Sciences of the National Research Council with which our association is indirectly affiliated. A brief report is attached.

The Chairman has been in correspondence with the several members in regard to the proper functions of the committee aside from its obvious duty to act on matters specifically referred to it by the Council or by other committees. Briefly, the consensus of opinion appears to be that the committee should in some limited manner act as an advisory body, correlating, encouraging, even initiating research. It might, as Dr. Whitehorn suggested in his last report, be empowered to make small grants to isolated workers, or better, perhaps, merely to advise them as to the feasibility of projected research problems.

For this and other purposes, the committee would need some sort of *index* of work, either in progress or recently published by Fellows, members, or their associates, in American psychiatric hospitals. Such an index, on a geographical basis, might be compiled in large part from hospital reports and selected psychiatric journals. It would not attempt, in view of objections previously encountered, to inquire into work in progress, though it would be receptive to any information voluntarily offered. There would be no attempt to cover psychiatric literature in general.

The Chairman believes that he can prepare such an index with voluntary assistance and carry it on for the coming year, without any expense to the association except for supplies. For the latter purpose he would like authorization to expend an amount not in excess of $25.00.

Respectfully submitted,
CLIFFORD B. FARR, M. D., *Chairman.*

Report of the Representative of the American Psychiatric Association in the Division of Medical Sciences National Research Council.

Your representative attended the meeting of the Division of Medical Sciences, N. R. C., held at Washington on April 25, 1935. The reports of nine committees in charge of as many different types of research, were heard.

The report of the Committees on Drug Addiction and Sex Problems were the only ones having any direct relation to psychiatry. The latter committee dispenses funds ($75,000 and upwards) to 18 centers of research. It was brought out at the meeting that the prevailing problems are now psychobiological in nature rather than hormonal, as formerly.

The programs for 1935-1936 of this and other committees are in the hands of your representative and are accessible to any one interested.

Respectfully submitted,

Clifford B. Farr, M. D., *Chairman.*

May 10, 1935.

Report of the Committee on Standards and Policies.

At the 1934 meeting of the American Psychiatric Association the Committee on Standards and Policies submitted a report discussing certain data obtained through a study of the state agencies charged with the management of public institutions for mental diseases, the apparent qualifications of these agencies and the apparent quality of their standards of care of patients. This study sought to ascertain not only the various plans of organizations and control in the different states and provinces and the apparent results of their practical operation but also the extent to which political considerations determine policies and dictate the choice of personnel.

The committee has continued the study of these data with special reference to the apparent extent to which politics determine such matters as appointment of central bodies, the selection, qualifications and term of office of hospital superintendents, and the freedom they enjoy as to the management of their institutions including the employment of personnel. The policies and practises as to each one of these matters will, of course, have an ultimate effect on the care of the patient.

The information obtained by the questionnaire of last year indicates that it would be possible to arrange the states and provinces in three groups according to the degree to which politics pervade the executive and medical agencies charged with the care of the mentally disordered and with the promotion of mental health.

In Class A would be those states and provinces in which central boards of control are composed of qualified psychiatrists who have had adequate institutional experience, or, if made up of lay persons, they are selected because they are expected to render honest, non-partisan service rather than as a reward for political service rendered or expected. Here, too, would be those states where the superintendent is appointed because of special professional qualifications, where his tenure is permanent and secure so long as he renders

competent service and where he is not coerced in the selection of personnel and in other administrative functions by political pressure. Doubtless there would be included in Class A some states which are not free from partisanship in the selection of the personnel of the central board of control or in other matters, but in no case should efficiency of administration or the welfare of the patient be sacrificed for partisan ends. In many instances, doubtless, states would be included in Class A where the plan or organization of the central board of control is not of the type that the committee believes is best fitted for such a body, yet may be functioning honestly and with reasonable efficiency.

In Class B might be included states or provinces where considerations of partisan politics occupy a place of undesirable importance, yet do not affect matters immediately touching the patients. In this class, for example, one might include a state where the central board of control is replaced with each change of governors, where it is selected for purely political reasons without regard for fitness to the appointments and yet superintendents are selected on the basis of their qualifications, are not removed for political reasons, and are permitted to operate their institutions without political interference.

In Class C would be included states in which standards of care must inevitably suffer from political practices existing therein. Those practices may be of various types, such as the appointment or removal of superintendents for political reasons, political dictation of superintendents in matters of appointment or discharge of employees, other political interference with administration, or the exaction of contributions to political parties.

Although various criteria have been mentioned on the basis of which a classification of states might be made, yet it does not seem practicable to attempt any such grading at this time. It might be added, however, that it was the impression of the Committee that roughly two-fifths of the states might be assigned to Class A, one-fifth to Class B, and two-fifths to Class C.

It is apparent from the foregoing that much remains to be done before public agencies concerned with the problem of mental disorders are purged of the blighting influence of politics. Since the extent to which political influence an dtheir resulting debasement of standards penetrate activities timed at the care of the mentally disabled depends largely on the constitution of central boards of control, any efforts at the eradication of politics should probably be directed first towards these central agencies. A study of the data gathered by this committee shows clearly that the most efficient administration of psychiatric institutions and the most enlightened care of their patients are secured in those states where the agency head is a psychiatrist of adequate institutional experience.

While it is recognized that in some states the organization of a special department as central control agency for psychiatric institutions only is impracticable, yet such should in general be the case. Even in the less densely populated states where a special bureau or department is not feasible, it will be found that psychiatric factors enter so largely into problems confronting correctional and other welfare agencies and institutions that such agencies and institutions together with those for mental disorders may well be grouped

into a central board of control, headed by or including a psychiatrist. It is therefore recommended that it be recorded as the sense of The American Psychiatric Association that the commissioner or other directing head of any state central control body governing institutions for mental disorders should be a reputable physician who has had at least 10 years' experience in the practice of medicine, not less than five of which must have been in an institution devoted to the care and treatment of persons afflicted with mental disorders or defects.

The committee wishes to repeat the opinion expressed many times previously that one of the most efficacious methods of raising the standards of administration and mental care in public hospitals for mental diseases would be a country-wide survey of these institutions by qualified personnel operating as the representative of this Association and responsible to it. The committee again, therefore, commends this step to the serious consideration of the Association.

ARTHUR P. NOYES, M. D., *Chairman*,
WALTER L. TREADWAY, M. D.,
EARL D. BOND, M. D.,
WILLIAM J. TIFFANY, M. D.,
CLARENCE B. FARRAR, M. D.

REPORT OF SPECIAL COMMITTEE ON SECTIONS.

When this society, now known as The American Psychiatric Association, was organized in 1844 under the name of Association of Medical Superintendents of American Institutions for the Insane the interest in the subject of mental disorders, stimulated by the crusading spirit of Dorothea Dix, was directed largely to the matter of adequate and suitable institutional provision for persons suffering from the major psychoses. The 14 psychiatrists who gathered at Jones' Hotel in Philadelphia on October 16 of that year met to discuss practical problems arising in the conduct of institutions and the care of patients in them. There was little thought of organizing a scientific association devoted to a highly specialized branch of medicine. At the fourth meeting of the Association, however, Dr. Luther Bell described a disorder that later came to be known as Bell's disease and made what was probably the first original contribution of the Association to psychiatry. As psychiatric science gradually developed, as private as well as institutional physicians became interested in the subject and medical schools incorporated its study in their curricula psychiatry became increasingly recognized as a definite medical specialty. Few if any other medical specialties have, within the past 25 years, so extended their fields or so broadened their concepts. Reference not only to medical but also to psychological, social and anthropological sciences has become necessary for its formulations. Physicians with minds trained in these various disciplines have increasingly affiliated themselves with the Association. Of its presidents within the past 16 years half have been professors of psychiatry in leading universities. The encouragement of research and the advancement of knowledge of the several

branches of psychiatry have increasingly become the aim of the Association. Other medical specialties and the various social sciences will cease to look to the Association for information and guidance unless this aim be kept constantly in mind and the undivided attention of the organization be focussed on the various sources which may shed light on personality disturbances and defects, their correction or alleviation.

The primary purpose of the Association, then, has come to be the investigation, prevention and treatment, including hospitalization, of mental and personality disorders. As the largest American organization devoted to these studies its province should be comprehensive and should include the various categories, applications and techniques susceptible of psychiatric consideration. By integrating these branches a desirable pooling of experience is made possible and a catholicity of opinion promoted.

From the foregoing the following principles may, we believe, be assumed: The American Psychiatric Association is at present primarily an organization of physicians pursuing a particular branch of medical science; second, that because of its peculiar nature this science easily lends itself to a diversity of categories, applications and techniques and, therefore, tends to the development of highly specialized and even divergent interests on the part of those pursuing it; third, that a broader view and a better balanced opinion are promoted by a merging of these various trends and branches of psychiatric discipline into a common association presenting a well diversified program and organizing a limited number of sections dealing with more highly specialized psychiatric interests. In making specific application of these principles the committee suggests to the Council that because of the importance and specialized nature of mental subnormality it recommend to the Association the organization of a Section on Mental Deficiency. In reference to a petition for the establishment of a Section on Administration the committee recognizes that the operation of a psychiatric institution is one of the most responsible duties in which a psychiatrist may engage. Because of their importance, provision should be made at the annual meeting of the Association for the discussion of questions of administration. It may be expected that contributions on administration will be made at general meetings. In order, therefore, that the unity of the Association may not be jeopardized by a multiplicity of sections and since it seems particularly desirable that the scientific work of the Association be kept constantly to the fore, the committee does not at this time recommend the organization of a special Section on Administration. As already indicated the committee entertains a sympathetic attitude toward the desire of many members of the Association for free discussion on the subject of hospital administration but in view of the inadvisability of multiplying sections, and of the eminent suitability of topics on administration in the general programs, it does not at this time recommend the organization of a special section on that subject. Because, however, of the undoubted necessity of discussion of matters of administration and because it is a subject which easily lends itself to the informal discussion of Round Table Conferences the committee would

suggest that the Committee on Program arrange at each annual meeting, when requested by ten or more fellows or members, for Round Table Conferences on this subject.

ARTHUR P. NOYES, M. D., *Chairman*,
JAMES V. MAY, M. D.,
WILLIAM L. RUSSELL, M. D.

REPORT REGARDING OFFICE SPACE.

The committee has looked into the various possibilities and feels that the most desirable location offered is at the New York Academy of Medicine, 2 East 103rd Street, New York, N. Y.

In addition to adequate office space this offer includes ample storage facilities in the basement and access to the library. These can be obtained by the Association for our share of the assessment, which would amount to approximately $75.00 a month.

A careful comparison between this offer and others, leads the committee to recommend that the offer of the New York Academy of Medicine be accepted.

Respectfully submittted,
CLARENCE O. CHENEY, M. D.,
C. CHARLES BURLINGAME, M. D.

REPORT OF THE COMMITTEE REGARDING THE SALMON MEDAL

Pursuant to the direction of The American Psychiatric Association, following the proposal of the Salmon Committee for Psychiatry and Mental Hygiene of the New York Academy of Medicine, to donate the "Salmon Medal," Dr. Clarence O. Cheney representing The American Psychiatric Association, and Dr. C. Charles Burlingame representing the Salmon Committee for Psychiatry and Mental Hygiene, have come to the following agreement:

It is proposed that the Thomas W. Salmon Committee on Psychiatry and Mental Hygiene of the New York Academy of Medicine donate a Thomas W. Salmon Medal for meritorious service in psychiatry to be awarded from time to time by The American Psychiatric Association through its Council or a committee appointed by its Council with one representative only from the Salmon Committee sitting with the representatives of The American Psychiatric Association in making the selection.

Upon the medal will appear in appropriate form Dr. Salmon's name and the fact that it is an award by The American Psychiatric Association for extraordinary service in psychiatry. The Salmon Committee of the New York Academy of Medicine does not wish to have its name appear on the medal but suggests in justice to the original donors to the fund, some mention be made of the source of the medal.

This agreement has been ratified by the Salmon Committee for Psychiatry and Mental Hygiene and is presented to the Council for action.

Respectfully submitted,
CLARENCE O. CHENEY, M. D.,
C. CHARLES BURLINGAME, M. D

Report of the Committee on Resolutions.

Your Committee on Resolutions first wishes to congratulate the Association on its prosperity during the past few years of economic depression, during which many medical societies and associations have found the way most difficult.

Our membership has steadily increased, our official JOURNAL has fully maintained its excellent quality; there has been likewise an increasingly active clinical and scientific interest on the part of our members.

The American Psychiatric Association continues to present in the United States and Canada the most important body of organized psychiatric thought and opinion.

Definite advances have been made in administration and in Standards and Policies.

We wish to call attention especially to the constructive attitude of the officers and the Council in the relationship of the Association to its sections. The Association is also to be congratulated on the action of the Council permitting at this meeting the admission of a section on Mental Deficiency. Thus there is officially brought into close contact a group whose interests are a definite part of the whole psychiatric field. We are sure that this section will be highly successful and contribute much to the whole.

The committee wishes at this time to call to the attention of the membership the desirability of making early application for certification to the American Board of Psychiatry and Neurology.

We commend the efforts of the Council and Executive Committee to maintain the high ethical standards of the membership of the Association.

We are gratified to note that the Executive Committee is authorized to proceed toward the classification and grading of our hospitals. This is an important task which for many reasons should not be further postponed.

Note should be made at this point of the change of location of the executive headquarters of the Association in New York to the Academy of Medicine, 103rd Street and Fifth Avenue. This change presents definite advantages. The Association appreciates the cooperation of the National Committee for Mental Hygiene, whose offices the Association has shared for the past three years. Members visiting New York should call at the Association headquarters. They will be warmly welcomed.

Of this, the 91st annual meeting of our Association, there is much more to be said than time will permit.

To a greater extent than ever before the members of the association have felt that this meeting was their own. Non-members were largely excluded.

As was the case last year, your committee must acknowledge the fine service of the Program Committee, headed by Dr. Samuel W. Hamilton. We know of no other committee whose duties are so exacting or arduous or to whom a sense of discrimination is more important. The papers presented this year have been of a high order of excellence and the Association is appreciative of the time and effort expended by their authors. The section programs are, it seems to us, to be especially commended. The informal

Round Table and dinner meeting of the Section on Convulsive Disorders demonstrated that fun may be happily mixed with scientific discussion.

The thanks of the Association must be extended to the Press of the country for the assistance given the Committee on Public Education in its efforts to differentiate fact from fancy in the field of psychiatry. Particular mention must be made of the national wire Press Bureaus.

The able and scholarly address of our President, Dr. C. F. Williams, in which he stressed the impossibility of separating the clinical from the administrative was most timely and stimulating.

To Major Edgar E. Hume of the Army Medical Library also goes our thanks for his illuminating address, preceding the President's reception on Wednesday evening.

The size of the Association with its sections presents each year increasing difficulties in the way of meeting management.

It seems to your committee that this year these difficulties have been remarkably well handled.

The hotel has been, both as to entertainment offered its guests and as a meeting headquarters, admirably suited to our purpose. We particularly appreciate the courtesy of the management.

Washington will always be one of the most interesting cities in the country for gatherings such as this. Our capitol city has this year in addition to its wealth of historical and current interests been blessed by fine weather.

We include that fact as one of the many things for which we must thank the Committee on Arrangements of which Dr. William A. White was Chairman.

The Association greatly appreciates the splendid work of this committee and all that has been done during the week for the comfort and entertainment of the membership and guests.

We must mention especially in this connection the singing of the students of George Washington University and the varied entertainment extended the ladies.

Special mention must be made of the help given the Committee on Arrangements by Mr. Austin M. Davies, Executive Assistant.

We are again this year indebted to Miss Crow, our reporter.

In conclusion, your committee feels that the 91st meeting of our Association now drawing to close will be long remembered both on account of its outstanding medical and scientific interest and for the happy circumstances under which it was held.

Ross McC. Chapman, M. D., *Chairman.*
G. Kirby Collier, M. D.,
Hugh Carter Henry, M. D.

May 17, 1935.

Correspondence.

AUGUST 29, 1935.

TO THE EDITOR OF THE AMERICAN JOURNAL OF PSYCHIATRY:

Dear Sir: Dr. Notkin (AMERICAN JOURNAL OF PSYCHIATRY, Vol. 91, No. 2, 460-4, 1934), in his review of The Curative Value of the Constitutional Therapy in Mentally Ill Women, Especially Schizophrenia, by Dr. Bernhard Aschner, says that this author shows a tendency to return to the pre-Virchowian state of medicine. Likewise, Drs. Appel, Farr, and Braceland (AMERICAN JOURNAL OF PSYCHIATRY, Vol. 92, No. 1, 201-6, 1935) assert that Aschner goes back a century to Heinroth and others, and imply that his ideas even revert as far back as the days of Benjamin Rush. It would require, however, a long historical dissertation to ascertain the exact ancient analogue for the twentieth century procedures of Aschner. But it is very easy, through the works of Robert Burton, to trace it as far as the seventeenth century.

The second *partition* of the Anatomy of Melancholy, published in 1621, deals with cures. Diet, air, exercise, persuasion, music, " witty devices," and other factors are amply mentioned. But particularly are the constitutional devices of Burton of interest. Aschner emphasizes cold baths, sweats, drastic purgatives, emmenogogues, emetics, blisters, and periodic blood-letting. Burton is more thorough, in his " rectification of retention and evacuation, as costiveness, venery, bleeding at nose, months stopped, baths, etc." He advocates, under appropriate circumstances, such methods of relieving melancholy as Cardan's nettles, frictions, clysters, suppositories, nasals, cupping glasses, issues, borings, cauteries, and hot irons. He " provokes " the urine, and " respects " the spleen, stomach, liver, and hypochondries. He prescribes gargarisms and masticatories, sneezing powders, odoraments, and perfumes. He purges upward and downward. He uses sinapisms, electuaries, simples (common and exotic), herbs, precious stones, potions, juleps, syrups, and wines. This is only a scant list. The

only mucosal lining that is not attacked is the conjunctiva, which would seem a grave omission in those cases of melancholy with suppressed lacrimation.

There are no doubt earlier historical parallels and precedents for the constitutional therapy, than those used even in Burton's day. That a three-hundred year old system of therapy is in operation today merely demonstrates that the road from empiricism to science, particularly in psychiatry, is long and tedious.

Very truly yours,

LOUIS J. BRAGMAN, M. D.

RØNVIK PR. BODØ, 20/8-35.

TO THE EDITOR OF THE AMERICAN JOURNAL OF PSYCHIATRY:

In THE AMERICAN JOURNAL OF PSYCHIATRY, Vol. 91, No. 6, page 1450, is printed a report with criticism of my work "Leberuntersuchungen bei Geisteskranken." Of course every author must submit to criticism; however this report is in essential points so misleading and contains so many incorrect statements that I by the right of the author find it necessary to protest. I shall mention some of the chief misunderstandings: according to the report I shall have expressed the conception that "the liver, being the center of the general metabolism, an organ which reacts to the most minute toxic influence is, therefore, necessarily the cause of the active phase and in some instances is also the prime factor of a psychosis." Further: "schizophrenia is sometimes essentially" a partial abiotrophy "but the liver is the center from which all psychoses emanate." Further the reporter writes that "he overlooks the fact that the positive findings occurred chiefly during the so-called active phase of a psychosis and it is begging the question whether the liver is at fault during these phases because of a disturbed psychic state."

To all this I shall only remark that I have repeatedly in my work pointed out, that the liver disturbances are *generally secondary complications*. The causes of these liver disturbances may, I think, be different, but from my tests it is evident that *one* important cause of the liver disturbances in schizophrenics and other mental cases is malnutrition. And I have distinctly pointed out

that when the liver disturbances practically entirely occur during the active phase, this is in great measure due to the simple fact that the patients, just "because of a disturbed psychic state," are eating insufficiently. The normal findings in the inactive phase are due to the simple fact that the patients then are taking *sufficient* food. All this is consistent with old experiences about the weight, to which Kraepelin, among others, attached great importance.

On page 303 under paragraph 7 in the summary I say: "*Das Material bietet eine Reihe von Tatsachen, die darauf hindeuten, dass eine Leberstörung zuweilen die Ursache einer Exacerbation der Psychose sein kann,* aber *meist* ist wohl die Leberstörung sekundär, eine Komplikation, die jedoch ihrerseits, muss man annehmen, die Psychose verschlimmern kann, und so Bedeutung für den *weiteren Verlauf* derselben bekommt."

Further, under paragraph 9: "Unter allen Umständen muss man in einem zustoszenden Leberleiden eine Komplikation sehen, die verhängnisvoll werden kann, vielleicht in erster Linie für Schizophrene."

From this is evident what I mean about the liver disturbances as complications and their importance. I did not mean nor write that the liver is "necessarily the cause of the active phase," still less that "the liver is the center from which all psychoses emanate."

The reporter says finally: "One wonders what the various tests would show in a normal man during his "flareups," if only such an investigation could be carried out." Of course a normal man can also get symptoms of liver disturbances by relative deficit of carbohydrates in the food, as showed by the *Norwegian* Olaf Bang and later confirmed by the Swede Åkerren and the Dane Nissen and others. In my work is reported a considerable number of tests on imbeciles and psychopaths and in none of these patients symptoms of liver disturbances were found; yet these groups include (see page 39) "zum Teil starke Unruhezustände, Angstanfälle, leichte Dämmerzustände, Depressionen und psychogenen Stupor."

I do not know the cause of all these misunderstandings, but of all the reports I have read the report in THE AMERICAN JOURNAL OF PSYCHIATRY is the only one that contains misunderstandings. (The work is reported in detail in a number of medical journals,

including *Zentralblatt für die gesamte Neurologie und Psychiatrie, Psychiatrisch-Neurologische Wochenschrift* and *Journal of Nervous and Mental Disease.*)

I hope Dr. Notkin will excuse me when I have no clear idea of the primary cause of schizophrenia!

In the conception of the active phase of psychosis I beg to refer to my study: "Schizophreniaproblems."

Lastly I beg to remark that neither the author nor my excellent advisers are Danish, but *Norwegian* (see page 2 and page 10: "Norwegen").

OTTAR LINGJAERDE.

Comment.

DOCTOR KIRBY PASSES.

Again The American Psychiatric Association has lost one of its most valued members. Dr. George H. Kirby, since 1923 an associate editor of the JOURNAL, died on August 11 at Wentworth-by-the-Sea, Portsmouth, N. H., whither he had gone for vacation, rest and recuperation.

For several years Dr. Kirby's health had been impaired, necessitating latterly the relinquishment of some of his heavier responsibilities, including the directorship of the Psychiatric Institute, and the professorship of psychiatry in the College of Physicians and Surgeons of Columbia University. He continued, however, his private practice, clinical work at the New York Hospital and teaching at the Cornell Medical College, and was a leader in the councils of the Association, serving as its president for the year 1933-34.

He attended the recent meeting in Washington and appeared before the Association as Chairman of the Nominating Committee to present the slate of officers for the coming year.

As clinician and teacher, investigator, administrator and author, and in his various advisory capacities, Dr. Kirby lived an enviably full and useful life. He gave unstintingly of his time and strength and wisdom in the planning and organizing of the new Psychiatric Institute and Hospital of the Columbia Medical Centre and presided at the brilliant dedicatory ceremonies in December, 1929. His influence will remain one of the assets of organized psychiatry in America. A memorial of Dr. Kirby's career will be published in a later number of the JOURNAL.

On behalf of Dr. Kirby's colleagues on the Editorial Board, and in his own name the Editor would like to express to Mrs. Kirby and to Miss Jeannette Kirby deepest sympathy in our common loss—a feeling which will be shared by the officers and members

of the Association and in wide circles of the medical profession and the community. Those of us who enjoyed closer association with Dr. Kirby mourn a staunch collaborator and cherished friend.

C. B. F.

THE SOUTHERN PSYCHIATRIC ASSOCIATION.

On February 5 and 6, 1935, at Memphis, Tennessee, was held the first annual meeting of the Southern Psychiatric Association. The program of this meeting and the organization behind it deserve comment. The territory represented by The American Psychiatric Association is so vast and the difficulties are so considerable for members to attend meetings held in remote cities, that a natural tendency is the formation of sectional associations. In 1922 there came into being the Central Neuro-Psychiatric Association with the objective "of affording better mutual acquaintanceship among the neuropsychiatrists of the central and western states and provinces." This Association has held regular annual meetings with scientific programs during the past thirteen years.

The foundation of the new Southern Association seems particularly opportune. Membership is limited to one hundred physicians practising psychiatry. The constitution and by-laws are similar to those of The American Psychiatric Association, and similar standards of qualification for membership will be upheld. The purpose of the Association is primarily to serve the interests of those states ordinarily described as lying south of the Mason and Dixon line, Missouri to Maryland inclusive.

Dr. Giles W. Day, superintendent of the Galveston State Psychopathic Hospital presided at the Memphis meeting. Dr. W. D. Partlow, superintendent of Alabama State Hospitals, was elected president for the year 1935-1936. Dr. Newdigate M. Owensby, Atlanta, who has been largely responsible for the organization of the Southern Association, was elected secretary for a five year period. Dr. Partlow represented the Southern Psychiatric Association, at the International Neurological Congress in London, and the International Congress in Physiology in Leningrad; the secretary was named delegate to The American Psychiatric Association.

The purposes of the new organization are well reflected in the first annual program. This program was prepared with a view

to interesting not psychiatrists alone, but rather all physicians and surgeons in the south. The papers dealt almost entirely with the psychiatric aspects of medical and surgical problems as reflected in the following titles: "Psychic Manifestations in Surgical Cases; Emotional Factors observed in Gynæcology; Diagnostic Problems produced by Psychic Factors; Psychiatric Manifestations of Hyperinsulinism; Incidence of Multiple Sclerosis in the South; Emotional Factors in Eye Examinations; Prevention of Mental Ills Through Child Guidance." These and other papers filled up the two day program at Memphis.

If the Southern Association adheres to its announced purpose it should become a potent influence in the development of psychiatry in the south, and in interesting the entire medical profession of the south in those problems of mental medicine which are so peculiarly the problems of every medical man. The plan projected contemplates making available to the profession at large in the area served this needful psychiatric information. This purpose alone would warrant the existence of the new body.

The Southern Psychiatric Association is, we believe, being developed along sound and conservative lines. So far as one may judge at the outset it would seem calculated to stimulate among the physicians and surgeons of the south a fructifying interest in particular in the mental aspect of disease. This interest will assuredly be more easily engaged by reason of the nature of the annual programs as above outlined, and by the announced intention of the Association to deal chiefly with practical problems, discouraging speculative theorizing, extremist hypotheses and the fads and fancies which so readily cluster in the fringes of scientific discussion in the psychiatric field.

The 1936 meeting will be held in New Orleans during the week of Mardi Gras.

We believe the Southern Psychiatric Association has a definite and valuable piece of work to perform and wish its officers and members every success.

News and Notes.

Appointment of Dr. Patten.—Dr. Clarence A. Patten has been elected to succeed Dr. Theodore Weisenburg as Vice-Dean, Department of Neuro-Psychiatry, Graduate School of Medicine, University of Pennsylvania. Dr. Patten is a well known Philadelphia neuro-psychiatrist and active in both neurology and psychiatry. He is a fellow of The American Psychiatric Association and assistant secretary of the American Neurological Association.

Committee for the Study of Sex Variants.—During the spring of 1935 a committee for the study of sex variants was formed with the following membership: Chairman, Eugen Kahn, M. D., Yale University; Secretary, Robert W. Laidlaw, M. D., Columbia University; Treasurer, Carney Landis, Ph. D., Columbia University. These three officers, together with Robert L. Dickinson, M. D., National Committee on Maternal Health, and Josephine H. Kenyon, M. D., Columbia University, constitute the Executive Committee. The committee members are Clarence O. Cheney, M. D., Columbia University; Maurice R. Davie, Ph. D., Yale University; Earl T. Engle, Ph. D., Columbia University; George W. Henry, M. D., Cornell University; E. A. Hooton, Ph. D., Harvard University; Marion E. Kenworthy, M. D., New York School of Social Research; K. S. Lashley, Ph. D., Harvard University; Adolf Meyer, M. D., Johns Hopkins University; Catharine Cox Miles, Ph. D., Yale University; Harold D. Palmer, M. D., University of Pennsylvania; Philip E. Smith, Ph. D., Columbia University; Edward A. Strecker, M. D., University of Pennsylvania; Lewis M. Terman, Ph. D., Stanford University; and Dorothy S. Thomas, Ph. D., Yale University.

The objects and reasons for the organization of this committee are the following:

1. To correlate the various scientific interests in this field of study.
2. To serve as a scientific sponsoring agency for the furtherance of research on sexual variation.

3. To appoint advisory sub-committees for projects sponsored or to be sponsored by the committee.

At the present time the committee is sponsoring several projects dealing with homosexuality as it appears in various classes of society. A study of 50 male and 50 female homosexuals of cultured background is already under way. Plans are far advanced for: (1) A study of homosexuality as it exists among members of the U. S. Marine Corps; and (2) A study of homosexual practices among adolescent boys who are inmates of an institution for juvenile delinquency. These projects include a psychiatric, endocrinological, roentgenological and hormonal approach to the problem.

The committee will be glad to consider any research projects which may be presented that have a bearing upon the physiological, psychological, psychiatric or sociological problems of sex variants, and to act in a sponsoring and advisory capacity should such projects be approved.

All communications should be addressed to the Secretary at 199 Fort Washington Avenue, New York City.

PHOTOGRAPHS OF THE SALMON BAS-RELIEF.—Last year there was placed in the New York State Psychiatric Institute and Hospital at the Columbia-Presbyterian Medical Centre a bas-relief of the late Dr. Thomas W. Salmon, the first director of the National Committee for Mental Hygiene. A limited number of photographs of this bas-relief were provided to supply members of the original Salmon Memorial Committee. The committee announces that there are a few of these portraits remaining, and that anyone desiring a copy may obtain it by addressing Mr. Paul O. Komora, Associate Secretary of the National Committee for Mental Hygiene, 50 West 50th Street, New York City. The cost of the portraits is $1.25 each prepaid.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION.—The fourteenth annual convention of the Central Neuropsychiatric Association will be held at Topeka, Kansas, October 25 and 26, 1935. On the program appear the names of Drs. B. Landis Elliott, A. L. Skoog,

Edward T. Gibson, G. Leonard Harrington, all of Kansas City. Drs. William C. Menninger, M. L. Perry, Ralph M. Fellows, G. S. Waraich, Leo Stone, Robert P. Knight, Norman Reider, C. F. Menninger, N. W. Ackerman and Karl A. Menninger, all of Topeka; Drs. Samuel D. Ingham and H. Douglas Eaton of Los Angeles; Dr. F. G. Lindemulder of San Diego; Dr. Walter F. Schaller of San Francisco.

The presidential address by Dr. George W. Hall will deal with "Impressions of Neurology in Europe." Guest speakers will include Honourable Alf. M. Landon, Governor of Kansas, and Dr. Smith Ely Jelliffe of New York. The scientific sessions will be held in the Recreation Center of the Menninger Sanitarium.

Book Reviews.

Die Störungen des Lichtreflexes der Pupille bei den Luetischen Erkrankungen des Zentralnervensystems. Beiträge zur Frühdiagnostik der Lues Nervosa. By *Otto Löwenstein.* (Basel: Benno Schwabe & Co., Verlag, 1935.)

The pupillary light reflex as a diagnostic sign is probably often impressionistically evaluated. As a rule no accurate measurements of the diameter of the pupil are made, neither is the tempo of the reflex gauged. Usually the pupil is inspected with the unarmed eye—a method subject to errors at best. Then there is the human element and the personal equation—factors which are apt to color the examiner's judgment. No wonder, therefore, that the statistical data on the pupillary light reflex, especially in general paresis, are not uniform and even contradictory. Some improvement was achieved with the introduction of the pupilloscope devised by Hess. With this method the pupil appears enlarged and some measurement of the sensitivity differences is thus possible. However, this method does not afford accurate measurements of the pupil nor a careful inspection of all the phases of the reflex. As a physiologic reflex the pupillary light reflex consists of several components, each of which may be altered under the influence of a disease process. The realization of the importance of timely recognition of the changes in each of the phases of the reflex lead Professor Löwenstein to devise a method which enabled him to record all the phases of the reflex accurately. The cinematographic method being used in the last quarter century in scientific work was applied by Löwenstein in his study of the pupillary reflex. It must be said that photographic recording of the reflex has been attempted before by Weiler. However, as he had to take the pictures in darkness in order to register the effect of the light on the pupil he was able to record the reaction of the pupil only at the moment of stimulation. Löwenstein, working since 1919, has succeeded in perfecting a rather ingenious method which allows him not only to photograph the pupil during all the stages of the reflex but to record also the shape of the pupil both prior and following the reflex act. This he achieved with the aid of a light filter which permits illumination of the eyes without stimulation of the pupils. In addition, the intensity of the light beam and the duration of the exposure is accurately controlled with the aid of a specially devised mechanism which is attached to the moving picture apparatus. Measurements of the pupil are made and recorded graphically in the form of curves. Löwenstein has studied with his technique numerous normal and abnormal reactions and the result of the study is this present monograph, half of which is taken up with the description of

the apparatus, technique, the theory of reflex, and the normal pupillary reflex types, while the other half with the various types of abnormal reflexes. He discusses at length the various phases of the normal pupillary reflex. There are, according to him, four normal types: the rapid contraction followed by an equally rapid dilation; the rapid contraction followed by a slow dilation; the slow contraction followed by a rapid dilation and finally a slow contraction with a slow dilation. His cinematographic records show that the phase of contraction is interrupted by short periods of dilation while during the phase of dilation there are short periods of contraction. As in all other physiologic reflexes there is the latent phase which precedes the period of contraction and another one immediately before the relaxation. Changes in the duration of the latent period are of particular significance. Löwenstein feels that the four normal light reaction types are constitutionally determined. This claim is made on the basis of observation of the reflex in identical and dizygotic twins. In the monozygotic twins the reflexes are identical or "concordant" while in the biovular twins the reflexes are dissimilar or "discordant." He goes into great detail of the changes seen during the state of fatigue; the paradoxical dilation, for instance, occurs during the state of fatigue which precedes immediately the complete exhaustion of the reflex. It is of interest that all signs of fatigue frequently manifest themselves much earlier in the consensual pupil. We learn further that affective states not only cause dilation of the pupils (psychoreflex) but that the degree of dilation, the tempo and duration of the reflex depend upon the quality and the intensity of the emotional stimulation. He believes that the dilation of the pupil caused by a psychic stimulus is produced by interruption in the sphincteric tonus as well as by reflex irritation of a center located in the subthalamic body. The interruption of the sphincteric tonus is probably determined by the cortex while the reflex stimulation is mediated through the sympathetic system. He emphasizes the importance of the simultaneous occurrence of both light and psychic stimulations and the possible number of resulting pupillary responses. The variety may be an endless one if one considers the infinite number of affective nuances that may combine with the four standard reflex types. It is also of interest that even the normal reflex type has no constant pattern and depends in a large measure upon the emotional state of the individual and on his mental content at any given moment. The cinematographic analysis of the pupillary movements would indicate that both the direct and the consensual reactions are never entirely identical. Löwenstein saw, for instance, normal pupillary reflexes with the consensual reaction lagging considerably, while in other cases the condition was reversed. In luetic brain disease one may see a variety of reactions beginning with such mild abnormalities of the reflex as increased fatigability in very early cases and ending with the immobile pupil. Löwenstein particularly emphasizes the importance of recognizing the mild and early pupillary changes during the so-called "psychoneurotic" phase of general paralysis, at a period when, except for a luetic history and mild neurotic

complaints, specific clinical signs and laboratory findings may be still wanting. He describes the various abnormalities of the pupillary reflex in numerous cases of general paralysis and cerebral syphilis in various stages of the disease. It will be impossible in the limits of a review to cite all the different types; only a few may be mentioned. A pathologic exhaustion of the reflex is, according to Löwenstein, frequently the first sign caused by syphilis. The exhaustion manifests itself in a prolongation of the latent period. Another initial sign of general paralysis is the dissociation between the contraction and dilation of the two pupils. This dissociation may consist of a disturbance in the phase of contraction in one pupil and in the phase of the dilation in the other. In other instances the dissociation is expressed in the tempo of the dilation. There is a form of dissociation which is characterized by an active direct reaction in one eye with a lagging consensual reaction and a reversed type of a reaction in the other eye. It is of interest to learn that generally the consensual reaction lags the direct and that even in normal cases, especially when there is a simultaneous psychoreflex, it may amount to only two-thirds of the degree of the primary contraction. In pathologic states, particularly in luetic brain disease, the lagging is entirely out of proportion. A consensual reaction which is stronger than the direct reaction occurs more often in luetic conditions than in any other states. A frequent sign in general paralysis is the so-called "tonohaptic" reaction. Under this term Löwenstein understands the prolongation of the latent periods both before the contraction and before the relaxation of the pupil after cessation of the light stimulation. The paradoxical reaction which has been considerably discussed in the literature is extensively described. The whole reaction seems to be based on a state of fatigue; mild paradoxical reactions may be seen in the normal eye and under the influence of psychic stimulation. A large portion of the monograph is taken up with the consideration of the extreme phase of the pathologic light reflex, namely, the rigid pupil. In the last few pages the pupillary reactions in the so-called functional disorders, especially in schizophrenia, are discussed. A diminished pupillary light reaction in schizophrenia seems to be a frequent sign. It manifests itself in a decrease of the tempo of both the contraction and of the relaxation and in an increase in the latent period. Löwenstein mentions the absolute rigidity of the pupil in dementia præcox as described by A. Westphal under the name of catatonic pupillary rigidity and "spasmus mobilis." He discusses the difference in the mechanism of the paretic and of the catatonic pupil, denying the assertion that in the catatonic pupil we are dealing with mydriatic changes. It is important that catatonic pupillary immobility is not a constant or permanent phenomenon. He describes pupils in catatonia which at one time are rigid while in the next moment respond promptly to light, only to show again a sluggish reaction a moment later. He believes that the inconstancy of the schizophrenic pupil is of great diagnostic value. The pupillary reaction in other organic brain diseases, especially in encephalitis, are mentioned and the tonohaptic reaction is particularly emphasized in the advanced stages of

the disease. Similar reactions may also be seen in a number of extrapyramidal conditions, such as progressive dystrophy, Huntington's chorea and generalized athetosis. He feels that the tonohaptic reaction has a localizing value.

Löwenstein's method fills a gap in our mechanical diagnostic armamentarium. His technique opens a new field for further research in neurology as well as in psychiatry, and it may take an equal place with such other well recognized diagnostic methods as electrocardiography and roentgenography.

J. NOTKIN.

CONTINUATION STUDY COURSE IN MENTAL HEALTH, OCTOBER, 1934–MAY, 1935. (Albany: New York State Department of Health, 1934.)

This booklet of 150 pages will be found very suggestive to anyone interested in the education of nurses, and particularly public health nurses, in mental hygiene. It contains a statement of topics to be studied and discussed by public health nurses in a staff education program conducted by the New York State Department of Health, and an appendix composed of a personality study outline and sixteen reprinted papers by such authorities as Sanger Brown, II, Horatio M. Pollock, and Howard W. Potter. These reprinted papers are concise statements of the present state of knowledge regarding such varied subjects as "Normal Personality and Its Variations," "Economic Loss Due to Mental Disease and Trends in Mental Disease," "Delayed Mental Development in Children," "The Interview in Public Health Nursing," and many others.

Eight topics, to which the reprinted papers bear close relation, are to be studied during this course. For each topic, suggested reading, objectives, and a study outline are laid down, to constitute a month's work. The study outline, consisting of questions upon the more important aspects of each topic, would seem a valuable means of directing attention and of arousing the individual to independent thinking.

In view of the emphasis which mental hygiene places on children's adjustments, it is rather surprising that more attention is not given to this phase of the work, especially as much of a public health nurse's time is devoted to children. It may be that this phase was studied in a previous course on "The Psychological Approach to Child Health."

C. G. STOGDILL.

THE PATIENT AND THE WEATHER, Vol. II. By *William M Petersen.* (Ann Arbor: Edwards Bros., Inc., 1934.)

Volume II is a further extension of the author's theme that the organism is a "cosmic resonator," and it is of special interest to the internist, whereas Volume III, reviewed previously in this JOURNAL, will primarily interest the psychiatrist. The present volume deals with the "vegetatively stigmatized" in whom autonomic inadequacy affords the basis for their symptomatology; they suffer from excessive autonomic lability and fail to achieve necessary

autonomic adjustments. The particular functional disability which may form the focal point and therefore characterize the disease—goitre, glaucoma, colitis, migraine, urticaria, ulcer—may be, and frequently is, precipitated and brought to clinical evidence by environmental alterations to which the autonomic adjustment has been inadequate. Many of the cases of maladjustment classed as psychoneurotic are properly placed in this group.

The importance of vascular spasm, occurring during the alkalotic phase, and consequent anoxemia, as the final mechanism of the focal reaction, is stressed. As in the foregoing volume, the exacerbations of the various disease conditions considered are correlated carefully with meteorological alterations—barometric pressure and temperature—and with fluctuations in the blood chemistry, blood count, blood pressure, pulse rate, B. M. R., capillary permeability and tissue oxidation rate. The study of a clinical case of migraine is illustrative of the author's method and reasoning; the fact is brought out that the headaches were of longer duration and more intense during the spring and then became less marked during the summer months. Secondly, the association with the barometric status is pointed out; headaches would occur chiefly when the barometer changed from high to low, or at the point of maximum depression, when a sudden upturn occurred. In spite of the mildness of the attacks during the late summer, this individual suffered during August from an unusually severe migraine, the logical cause for which must have been vascular spasm superinduced by autumn alkalosis and unrelieved until starvation acidosis ensued. Changes in the blood chemistry of different migraine patients were variable, but in individual patients, invariable. Thus, in one case, the beginning of an acute migraine attack was always associated with an increase in the blood pressure, lowering of the CO_2 content, increase in blood pH and lowering of the blood proteins. In many cases there were rather wide fluctuations of the K/CA ratio associated with the attacks. The large amount of detailed work done on each case and the careful correlation, in a large number of cases, of the various factors mentioned, tends to eliminate the element of chance, so that the conclusion that meteorological disturbances do precipitate autonomic disturbances seems tenable and logical. Before accepting the author's premises and conclusions one would naturally want the same type of work repeated elsewhere by a critical observer. This volume will be welcomed because of the new viewpoint of disease which it gives the medical profession, and because of the therapeutic implications necessarily involved in such a viewpoint.

SINCLAIR,
Howard, R. I.

INVESTIGATIONS INTO THE CAUSES OF MENTAL DEFICIENCY. By *H. O. Wildenskov*. (Copenhagen: Levin & Munksgaard. London: Humphrey Milford, Oxford University Press, 1935.)

This is a thoroughly conducted investigation through primary sources by the author himself. It entails painstaking personal inquiry into the

histories of 100 patients of the Keller Institution, and of their near and distant relatives. The results lean towards the support of an endogenous etiology in mental deficiency.

Based upon a working hypothesis that " . . . . there seems to be a rather great difference in etiology of the mild and the severe forms, the milder degrees appearing on an average far more likely to be of hereditary nature," two groups of 50 patients each were selected from the population of the Keller Institution. Group A represented the "school" or highest grade and Group B, the "asylum" or lowest grade.

The nature of collecting the data enabled the accumulation of an abundance of material which is undoubtedly more reliable than in the majority of case histories in institution files.

Comparison of material for the two groups reveals considerable support for the author's hypothesis:

	A.	B.
Per cent of siblings subnormal (I. Q.'s 0-90)	51	26
Per cent of parents subnormal	65	12
Per cent of patients illegitimate	22	6
Per cent of patients in lowest social strata	76	22
Possible cases of acquired defect (%)	4	16

In searching the histories of the 100 patients, Wildenskov was able to find only 10 instances of probably exogenous cause—*i. e.*, cases in which there was no evidence of a more probable hereditary taint. In discussing the possible acquired conditions, the author cites several cases, which indicate that, in the event of a comprehensive history of the patient, the question of etiology becomes extremely difficult. To quote, " . . . . even if the information obtained in a given case appears to indicate that an acquired affection may be the cause of the mental defect, the question will still arise whether it might not be so that an unfavorable inheritance has already prepared the soil for the noxious effect of the acquired diseases." Thorough histories alone can throw light on this question.

The article is well and thoroughly written. It includes comparisons with and discussions of several European writers on the same topic. A number of cases are detailed and an extensive bibliography—principally European—is included.

S. J. W. Horne.

The Autonomic Diseases or the Rheumatic Syndrome. By *T. M. Rivers.* (Philadelphia: Dorrance & Co., Inc., 1934.)

This remarkable book is an enthusiastic treatise on practically the whole list of the symptom-complexes which we call disease from the point of view of one who has clasped the autonomic nervous system to his breast in an unyielding embrace. While the description of the autonomic system is excellent, yet the argument in favor of a peculiar setup in the sympathetic-parasympathetic balance in the constitution of individuals making them sus-

ceptible to influence in their environment with the production of these diseases is not quite convincing. Probably no one who has contemplated disease processes has not been tempted with this same proposition. Dr. Rivers has fallen for it and has fallen very hard. One can well understand it, the attractions are most alluring. And the trouble is that the theory fits so well occasionally and almost fits sometimes that in one's enthusiasm the little hitches can be easily ignored. On the other hand everything (almost) the writer says about symptoms is approximately true because the very delicacy of the autonomic control presages its upset in the presence of disease with the production of important signs and symptoms. Dr. Rivers reverses this situation. The prime movers in the autonomic diseases according to Dr. Rivers are toxins in the form of amines derived from foci of infection or from the intestinal tract, etc., and by their stimulation by irritation of either the sympathetic or the parasympathetic produce disease in the tissues supplied by them in that particular area. But on the ætiology of diseases there will be many who will find themselves unable to wade through the mass of none too accurate explanations which Dr. Rivers has found necessary to shield his theories.

TREVOR OWEN.

THE AUTONOMIC NERVOUS SYSTEM. By *Albert Kuntz.* (Philadelphia: Lea and Febiger, 1934.)

Since the publication of this book in 1929 it has come to be recognized as a standard text-book of great value. This second edition, incorporating the advances in knowledge of the autonomic nervous system during the last five years, is assured of an appreciative welcome from both clinical and academic workers in the field.

The text is slightly increased in length, but the author's powers of condensation are evidenced by the fact that his bibliography is almost double the length of that published in the first edition. This bibliography is an extremely valuable addendum to the book, and its utility is enhanced by its being split up into sections corresponding with the chapters of the text.

The general arrangement of the text has not been significantly altered. There are a few additional illustrations.

ERIC A. LINELL.

MENTAL TRAINING—A PRACTICAL PSYCHOLOGY. By *S. N. F. Chant.* (Toronto: The MacMillan Company of Canada, 1934.)

"Many persons have entered into the study of psychology with the expectation that it would prove helpful for understanding and improving their own mental lives. That many of these have been disappointed is obvious. This book is the outcome of a conviction that their need can, and should, be met. In it the author undertakes to develop a sound but useful psychology."

With this thesis, Professor Chant, of the University of Toronto and member of the Research Staff of the Canadian National Committee for

Mental Hygiene, seeks to offer in a new and experimental setting, valuable psychological principles. Successful methods of learning are illustrated by class experiments. The same schemata is adopted to reveal to layman and student alike, proper methods of remembering, attending, reasoning, and the making of decisions. The advisability of each mental pathway recommended is shown by means of a class experiment having definite results. A timely chapter, theoretical but logical, on keeping mentally healthy, completes the short volume.

The book will be welcomed by those desiring a more scientific approach to mental training.

WILFRED SCOTT.

TRAINING IN PSYCHIATRIC SOCIAL WORK AT THE INSTITUTE FOR CHILD GUIDANCE, NEW YORK, 1927-1933. By *Sarah H Swift.* (New York: The Commonwealth Fund, 1934. London: Humphrey Milford, Oxford University Press.)

This book is a real contribution to psychiatric social work. It has to do with one of the important functions of the profession—the training of students. In it Miss Swift has given us the philosophy of developing psychiatric social workers as it changed and grew at the Institute of Child Guidance from 1927 to 1933. In the first chapter the author traces the changes which psychiatric social work has undergone, and so orients the reader to the aims of the training as regards both the student's development and the level of treatment on which she worked. The chapters dealing directly with supervision, especially chapter five with its carefully thought-out chart for evaluating the student's work and her personality growth, are sure to be of interest to every supervisor and invaluable to those new to the work of supervision.

Miss Swift's book is the first one of its kind and while it concerns itself with the psychiatric field it will be of real value to all those interested in the development of social work.

ADA REEVE JOYCE.

BILDUNG UND AUSBILDUNG BEIM SCHWEIZERISCHEN PFLEGEPERSONAL FUR GEMUTS—UND GEISTESKRANKE. By *W. Morgenthaler.* (Bern: Verlag Hans Huber, 1934.)

This article is the seventh in a series pertaining to nursery problems in Switzerland. Book seven focuses its attention especially on the Swiss nursing attendants in institutions for the mentally ill.

The editors invite suggestion and criticism in any form that will stimulate public opinion, raise the standard of nursing and in general benefit the health and welfare of the patient.

Dr. Morgenthaler has outlined a system for selection of hospital attendants, which is not only dependent on the peculiar adaptability of the individual, but further, they must meet certain educational requirements

as set forth by the Swiss technical schools. After admission they will receive intensive training leading to a diploma of proficiency.

The report is well written and shows that the author has made a very thorough investigation of the subject to hand. Such a study is always acceptable and worthy of earnest consideration.

RUTH MACLACHLAN FRANKS,
Toronto, Ont.

MENTAL HEALTH: PAST, PRESENT AND FUTURE. (The Colver Lectures, 1932.) By *Arthur Hiller Ruggles*. (Baltimore: Williams and Wilkins Company, 1934.)

In this small volume of 104 pages Dr. Ruggles has compressed much interesting and stimulating information. Though addressed to a lay audience, psychiatrists will enjoy and profit by reading these lectures.

Naturally, being divided into three lectures the content of each is approximately equal. The first lecture is on Mental Health of the Past, the second on Mental Health of the Present, and the third on Mental Health of the Future. It is somewhat difficult to say which has the greatest appeal as probably much will depend upon the bias or interests of the reader.

In the first lecture, Dr. Ruggles sketches lightly our knowledge of mental diseases from biblical times to the middle of the nineteenth century, briefly mentions some of the contributions by Cullen, Pinel and others, and outlines the history of some of the early efforts for better care of the insane as shown by the establishment of various hospitals. This chapter should stimulate the younger psychiatrist to learn more in detail of the history of his specialty and fill in the excellent outline which has been provided for him. While it may be felt that Dr. Ruggles should have given more space to some of those men whom he mentions it must be remembered that he was unable to do so in the brief time allowed him.

In the second lecture, Dr. Ruggles speaks of the difficulty in assigning a sharp dividing line and asks "Is the present represented only by those happenings taking place during the memory of our oldest inhabitants, or of our youngest?" He then proceeds to detail the work done by Dorothea Lynde Dix in Rhode Island in the last century, thus nicely laying a foundation for what follows by detailing briefly conditions existing "less than a hundred years ago." This done, Dr. Ruggles points out the contributions to our understanding of mental mechanisms made by Freud, Janet, Kraepelin, William James, Stanley Hall, William H. Burnham and others, and gives the steps which led to the organization of the National Committee for Mental Hygiene and its later developments, The American Foundation for Mental Hygiene and The International Committee for Mental Hygiene, incidentally paying tribute to Clifford W. Beers and Thomas W. Salmon. Hence he traces the development of child guidance clinics and the increasing interest taken in behavior problems by schools, colleges, stores and other industrial establishments. He concludes by emphasizing the importance of prevention and relates the steps already taken.

In the third lecture, Mental Health of the Future, it is pointed out that we are dealing with many variables, such as changing economic and social forces, the steady advance of science and other factors. In this lecture Dr. Ruggles sanely and hopefully discusses the means of better care of the psychotic and prevention of at least a part of mental breakdowns. Here again the young psychiatrist will find much to stimulate him to become a stronger force and of more value to his fellow men.

Dr. Ruggles has given us a delightful book which every psychiatrist should profit by reading.

W. R. D.

BIBLIOGRAPHY ON WAR-PROBLEM, WAR-PSYCHOLOGY, WAR-PSYCHIATRY, No. 1. (Haarlem: Netherlands Medical Association, 1935.)

This is a 24-page pamphlet listing a considerable number of the outstanding contributions to the aspects of war cited above.

It has been prepared by the Committee for War-prophylaxis of the Netherlands Medical Association with the objective, as stated in the prefatory word, of rendering assistance in the study of the war problem and in demonstrating that war prophylaxis belongs to the domain of medicine.

As the committee states the bibliography is by no means complete, and they invite correspondence relative to additional items which will be included in supplementary numbers.

The Secretary of the Committee may be addressed at Koninginneweg 107, Haarlem, Holland.

C. B. F.

SHAKESPEARE ET LA PATHOLOGIE MENTALE. By *Docteur André Adnès.* (Paris: Librairie Maloine, 1935.)

The works of no other figure in literature have been so much discussed from the psychiatric standpoint as have those of Shakespeare. The reason is that no other author has dealt so abundantly in psychiatric issues or has so successfully presented them in such form as to make them at once legitimate dramatic material and valuable documents for the student of the science of mind. It was Régis who called Shakespeare "the greatest of the masters of the drama of psychiatry who ever lived."

The author of the present work may therefore quite properly consider his study of the psychopathology of the plays of Shakespeare as a real contribution to the history of mental medicine.

One might ask whether, in view of the extensive literature already available, there is need for another survey such as this. It may be stated however that the plan of treatment adopted by the author is calculated to distinguish his treatise from those of his predecessors and to give it a peculiar and lasting value. He begins by introducing the reader to the views on mental pathology and normal psychology which were current in the time of Shakespeare, epitomizing for this purpose at some length the teachings of the Greek

and Roman schools from Hippocrates to Galen. Thus he endeavors to interpret the psychiatric problems of Shakespearean drama, not in the false light of twentieth century theories and opinions, but on the basis of the state of knowledge of the late sixteenth and early seventeenth centuries.

Both the scientific and the popular mind in the sixteenth century were still dominated for the most part by the teachings of the ancient masters as transmitted across the centuries by Galen; but there was in addition the influence of a new chapter which had been written during the middle ages—that of demonology—familiarity with which is also necessary to an understanding of the allusions of the Elizabethan stage. By taking careful account of all these matters the author has followed the only procedure which can afford a satisfactory insight into the normal and abnormal mental states reflected in the characters of Shakespeare.

As an immediate frame of reference, recourse is had to the works of Paul Zacchias, medico-legal expert at the Tribunal of the Rota, in whose *Medico-legal Questions* (Rome, 1625) are to be found the medical and psychiatric counterparts of Shakespeare's descriptions. "Shakespeare possesses all the psychiatric knowledge of Zacchias. The latter, we may be sure, would recognize in Shakespeare a perfect community of views."

The abnormal mental conditions represented in the plays the author groups under the following headings: "states of secondary insanity" (terminology of Zacchias), including apoplexy, epilepsy and hysteria; febrile deliria; melancholias; the "malady of love"; insomnia, dreams and "noctambulism"; demoniacs and fanatics; maniacal states; intoxication and habitual drunkenness; crime and punishment.

The causes of mental derangement as presented by Shakespeare reflect the views of the times; the humoral theory is repeatedly suggested; and, as the author points out, only organic factors were known or suspected; the psychogenetic era was not yet—"I'll ne'er believe a madman till I see his brains," exclaims the Clown in *Twelfth Night*.

If there is hardly an aspect of the psychiatric knowledge of his age which Shakespeare has not touched upon, so there appears to be none which the author of this engaging book has not faithfully reported; the entire psychopathology of the dramatist is passed in systematic review with ample quotation.

In a separate chapter on bibliography are discussed the works of the principal writers from Mackenzie (1780) to date who have dealt with the mental pathology of Shakespearean drama—there is an appended list of some 150 titles. The author observes that he has systematically neglected the psychoanalytic studies of Shakespeare which have been rather plentiful in recent years. "Mais si elles présentent quelque intérêt du point de vue psychologique, nous ne pensons pas qu'elles en présentent un quelconque du point de vue psychiâtrique,"—an opinion to which the present reviewer has struggled in vain to take exception.

C. B. F.

MEGALO-MYELO-ENCEPHALY.* †

Report of a Case with Diffuse Medulloblastosis.

By A. FERRARO, M. D., and S. E. BARRERA, M. D.,
Department of Neuropathology, New York State Psychiatric Institute and Hospital, New York, N. Y.

Introduction.

Since Virchow,[1] in 1855, in attempting to account for general brain hypertrophy, proposed the term "cephaloma" for the condition, many cases have been described tending to show that many different findings may be associated with pathologically increased brain weight.

The term "megalencephaly" was first adopted by Morley Fletcher[2] in 1900 to account for cases which grossly showed normal appearing brains but which, nevertheless, were the seat of some dynamic defects. Since that time cases have been reported in which many explanations for increased brain weight have been given, ranging from a simple hypertrophy of all the elements present normally in the brain, as discussed recently by Wilson,[3] to that of a diffuse glioblastomatosis (Weil).[4] The term has come, we feel, to mean merely a large brain which may be associated with any of many varying pathological findings. The present case seemed to us to be of interest because of the very great volume and weight of the brain, medulla and spinal cord, associated with relatively slight symptoms in life, and because of the unusual nature of the histopathological findings. We have not been able to find any exactly similar case in the literature.

* The authors wish to express appreciation to Dr. L. Sophian, pathologist at the Roosevelt Hospital, New York City, for the general gross pathological autopsy description, and to the Nassau Hospital, Mineola, Long Island, for the clinical notes concerning the terminal illness of the patient.

† Read at the meeting of the American Association of Neuropathologists at Atlantic City, New Jersey, June 4, 1934.

Birth and Early Development.

The mother stated that the child had an instrumental birth, that he was late in arriving, and weighed 16 pounds (?). He always had a slightly large head. At the age of two months he vomited steadily for two or three weeks. This ceased, however, when he was taken from the breast. Diagnosed as having rickets at the age of three months. At four months he had some gastro-intestinal difficulty which was treated by rectal suppositories. Bed-wetting stopped at the age of two years. He had measles at three years. At the age of four, he began to wear eye glasses, and supposedly never saw well until about seven years of age. However, the parents reported that at times the boy apparently saw objects at a distance at which they would have to make a special effort to visualize. At other times his vision seemed very poor. He was given special consideration at school because of his visual difficulty.

From his seventh year on, he occasionally developed moods of irritability and manifested considerable antagonism toward other children, especially of the opposite sex. He often soiled himself when he became excited. About once or twice a year he would fail markedly in his school work and at these times he would become very disagreeable at home. At such times he usually had a few prolonged nose bleeds after which he would feel better. The moody period usually lasted about two months, during which he would be sulky and throw things about, including cups, spoons, table knives, etc. He fought a good deal with his younger brother. At other times, however, he was a "perfect angel," according to his mother. At the age of seven he was admitted into the sight conservation class and he remained there until seen by one of the writers.

Family History.

The only item which might have been of some importance in the history as reported by the parents was that the patient had a sister who died at the age of two, and who was also said to have had difficulty with her eyes. She had numerous temper tantrums in which she beat her head against the wall, and threw various objects around and became very disagreeable.

A parental uncle was also said to have a marked ocular difficulty of some type. He was said to have St. Vitus dance. He likewise was of an irritable disposition and threatened to commit suicide whenever he was frustrated in anything.

Previous Examinations.

At the age of nine, the boy was studied in the clinic of the Cornell University Medical College, where he was seen in the departments of pediatrics, ophthalmology, neurology and psychiatry. The combined diagnoses at that time were " moderate chronic hydrocephalus, dyspituitarism, mental retardation and congenital malformation of the maculæ of the eyes."

At the time of that examination, the boy was found to weigh 87 pounds, whereas the average is 72 pounds. The circumference of the head was $23\frac{1}{8}$ inches, whereas the average was 21 inches. The eyes showed a slight lateral nystagmus and internal strabismus. Vision was very poor in both eyes, the boy being only able to distinguish fingers at a distance of 2 to 5 feet. Color vision was normal and the peripheral fields appeared normal in size. The ophthalmologist did not believe that the optic nerves showed atrophy. There were, however, numerous white plaques in the region of the maculæ, which were thought to be either congenital or due to some previous inflammation.

The boy showed very small external genitalia, undescended testicles and redundant prepuce. There were no palsies, atrophies, or sensory defects of any type. All sensory reflexes appeared normal. Blood and urine examinations were negative. X-ray of the head with stereoscopic films showed a large thin cranial vault with not very prominent convolutional markings. The blood vessels did not appear unusual. The sella turcica did not appear unusual. The impression was of a chronic hydrocephalus.

Present Clinical Examinations.

The patient, W. H., age 12, was first seen by one of us (Barrera) on March 3, 1933. He was brought for examination on account of a visual defect which he had had since birth and on account of recent failure in his school studies and because of an increasing general irritability. Physical and neurological examinations at that time revealed a rather well-developed boy, with a leaning toward

the feminine type of habitus, and with a rather marked visual defect, not being able to count fingers at a distance of 6 to 8 feet. He had a large head, $25\frac{3}{4}$ inches in circumference, and a deficiency in the development of sexual characteristics. His skin was rather soft, there was very little hair and the boy's musculature appeared rather flabby. General physical examination revealed nothing else in particular, with the exception of the eyes, which showed a constant oscillating side to side movement and peculiar whitish plaques in the region of the maculæ. The discs did not show optic atrophy. Otherwise the boy was completely negative neurologically.

In light of the previous findings and those of the authors, which suggested a definite organic defect, and because of the increasing psychological defects the boy was referred in May, 1933, to the out-patient department of the New York State Psychiatric Institute and Hospital, to the service of Dr. H. W. Potter, for attempts at psychological readjustment. He was followed in the out-patient department for several months and, on the whole, he appeared to make considerable progress psychologically. During that time the blood Wassermann was found to be negative and several X-ray examinations of the skull revealed a condition diagnosed as a chronic hydrocephalus. The psychometric tests, repeated several times, gave an I. Q. of 86. While in the clinic of the Psychiatric Institute, the diagnoses were: primary behavior problem, conduct disorder with hydrocephalus and dull normal intelligence.

On November 28, 1933, he complained of an earache, which persisted until the next day. During that day he vomited several times. During the night he seemed to be delirious and lost bowel and bladder control. The next morning his ear was opened. This was followed by another involuntary bowel movement associated with fainting. He became limp and soon after became drowsy, dizzy and could not be aroused. The same evening his temperature rose to 106° and the doctor said that there were signs in the left lung. This was followed by a short period of improvement. The next morning he again passed into a period of marked drowsiness. This vascillating condition continued for two days, when he became much worse, and vomited once, projectile in nature. The same day he was taken to the hospital (Nassau County Hospital, Mineola, N. Y.) with a rectal temperature of 107.6° and a pulse of 140. He died four hours after admission.

PHYSICAL EXAMINATION ON ADMISSION TO THE HOSPITAL.

This revealed an acutely ill, comatose, well-developed boy, with no cyanosis or orthopnea. There was an internal strabismus of the left eye and there were signs of consolidation in the left base posteriorly. The heart was normal. Abdominal reflexes were absent. Knee jerks were hyperactive. There was a bilateral sustained ankleclonus. There were bilateral Babinskis. Generally increased muscle tone. Spinal tap was negative, except for a slight contamination with blood. The white count was 11,000; 92 per cent polys. The admission temperature was 107.6° and mounted in the following four hours to 110.2° just before death.

General autopsy findings, exclusive of the nervous system, revealed consolidation of the left lower lobe in the lungs. The heart was normal. A mass was found in the posterior mediastinum at the left of the sixth to ninth thoracic vertebræ. It was about 7 cm. long and 3½ cm. in thickness, placed behind the aorta, alongside the vertebral bodies on the left side. It appeared to be connected with the sympathetic ganglia. On section it was yellowish grey in color, and had a fibrous texture. The capsule was sharply outlined and the surface was covered by pleura. The spleen weighed 450 grams. The liver was of normal size with a smooth capsule and definite markings on section. The gastro-intestinal tract was normal throughout except for a Meckel's diverticulum 8 cm. in length, about 2½ cm. above the ileocecal valve. The kidneys were of normal size with clear markings on section and readily stripping capsules.

The diagnoses made by the house physicians at the Nassau Hospital, Mineola, where the autopsy was performed, were as follows: lobar pneumonia, left lower lobe, and bronchial pneumonia, right lower lobe; acute splenic enlargement; acute otitis media and acute mastoiditis, left; chronic arachnoiditis and diffuse enlargement of the brain, and atrophy of the calvarium. The brain was sent to the Psychiatric Institute for study.

MACROSCOPIC FINDINGS IN THE CENTRAL NERVOUS SYSTEM.

Brain weighed 2050 grams when freshly removed from the body. The external configurations of the cerebral hemispheres and the cerebellum appeared normal but enlarged in all diameters as compared with the average adult brain. Although no accurate weight

was made of the cerebellum to determine its weight relative to that of the cerebrum, it appeared that the cerebellum was even more enlarged in all its diameters than was the cerebrum. Enlargement in all diameters extended all the way down through the brain stem, involving the basilar portions and even the spinal cord. The blood vessels on gross examination appeared normal, both as to size, distribution and consistency. There was no exudate. The ventricles appeared normal in size or even perhaps smaller than the normal. The surfaces of the ventricles, particularly the lateral ventricles, were not smooth, there being numerous small eminences 2 or 3 mm. in size, projecting into the ventricular cavity. The brain showed no abnormal configurations or growth of any kind. The optic nerves and chiasma appeared to be of normal size and consistency.

In summary, the case presented merely a generalized enlargement, which was apparently symmetrical, involving all portions of the central nervous system in essentially the same degree.

Fig. 1A shows a photograph of the brain, from which it can be seen that the patterns of the convolutions appear normal, although each of the convolutions appears larger than the average. The large size of the cerebellum as compared to the rest of the brain can be seen from the photograph. Fig. 1B illustrates the size of the brain of a normal adult (36 years old) at the same magnification. The difference in size between the two cases can be easily seen.

Microscopic Findings.

Sections were taken from all portions of the nervous system and stained with the usual stains including the Nissl, Del Rio Hortega, Cajal, Spielmeyer, Weigert, Fett-ponceau, Bielschowsky and H. and E. methods. For areas revealing what was found to be a very common pathology, namely the nests of small round cells, serial sections were studied with five different methods including H. and E., Hortega, Cajal, Bielschowsky and Holzer methods.

Since the findings in the cerebellum supplied the key to our interpretation of the case, we will begin by describing the microscopical changes found there.

The first thing with which one was impressed upon looking at a section of the cerebellum, stained with the Nissl stain, was the

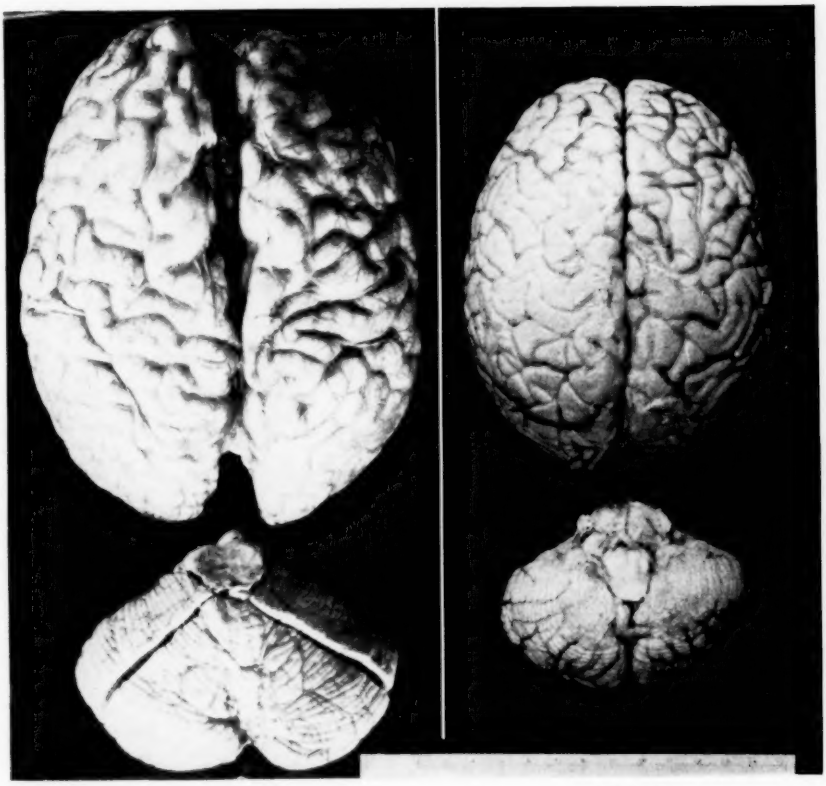


FIG. 1A. FIG. 1B.

Fig. 1A is a gross photograph of the brain of the present case. The general enlargement of the cerebrum and cerebellum can be seen when comparison is made with Fig. 1B which is that of a normal adult male brain photographed at the same degree of magnification.

FIG. 2B.

FIG. 2A.

FIG. 2A shows a low power photograph of the cerebellum stained by the Nissl method. The general persistence of the external granular layer can be seen throughout the whole cerebellar surface. The dense character of the external granular layer and the wide molecular layer [illegible] Nissl preparation from one of the leaflets shown in Fig. 2B.

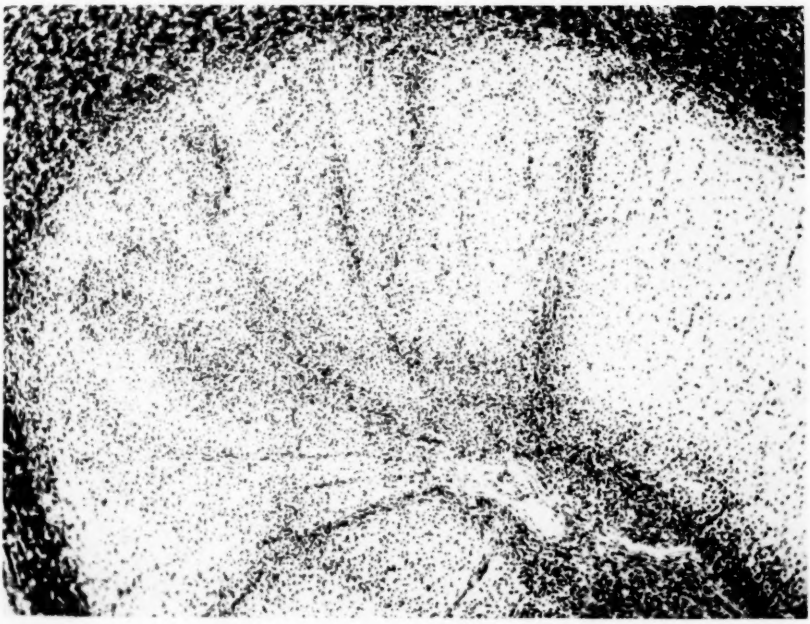


FIG. 3.—Section from the base of one of the sulci in the cerebellum showing the inward streaming of the cells of the external granular layer through the molecular layer into the internal granular layer. The streaming is not confined to the course of blood vessels but also appears to pass directly through the tissue of the molecular layer. Nissl preparation.



FIG. 4.—Section of one of the leaflets showing a dense area of increase of the external granular layer which completely obliterates the molecular layer in this region and joins the internal granular layer, forming a small nodule. Nissl preparation.

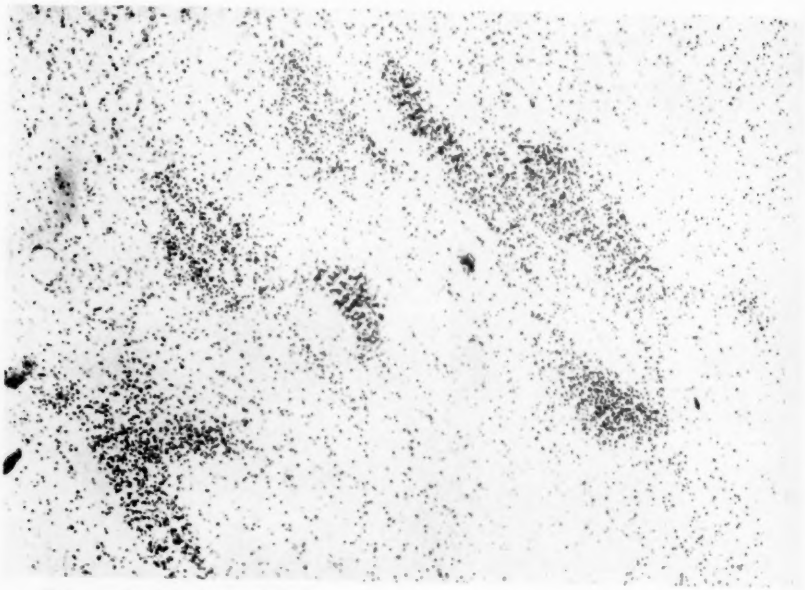


FIG. 5.—Section of the white matter from a frontal radiation showing numerous small white matter foci which contain numerous indifferent round cells and which bear no direct relationship to blood vessels. Nissl preparation.



FIG. 6.—Low power microphotograph of a section from the occipital lobe showing a large abnormal cellular focus in the white matter. Higher power study reveals that this focus contains predominantly glia cells of various types. Nissl preparation.

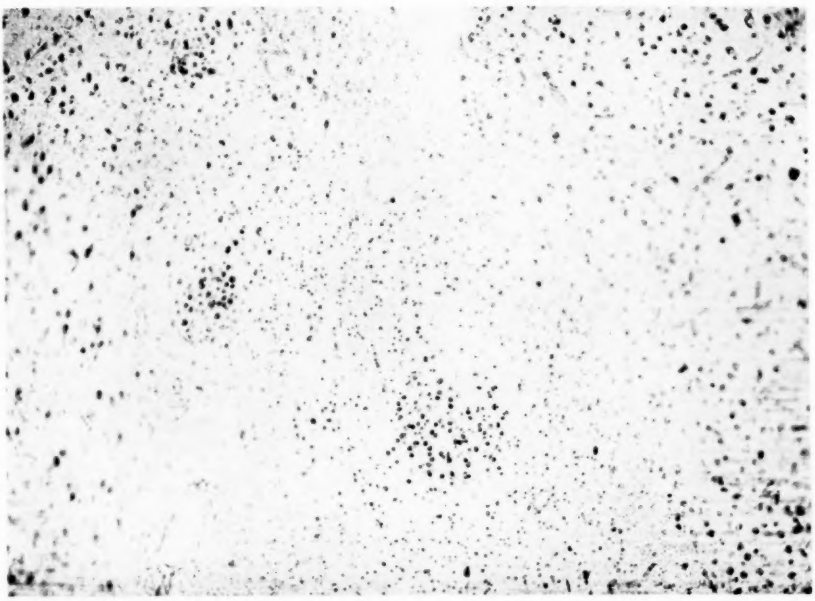


FIG. 7.—Low power microphotograph of abnormal cell groups in the external capsule of the claustrum. These groups contain chiefly nerve cells at various stages of development. Nissl preparation.

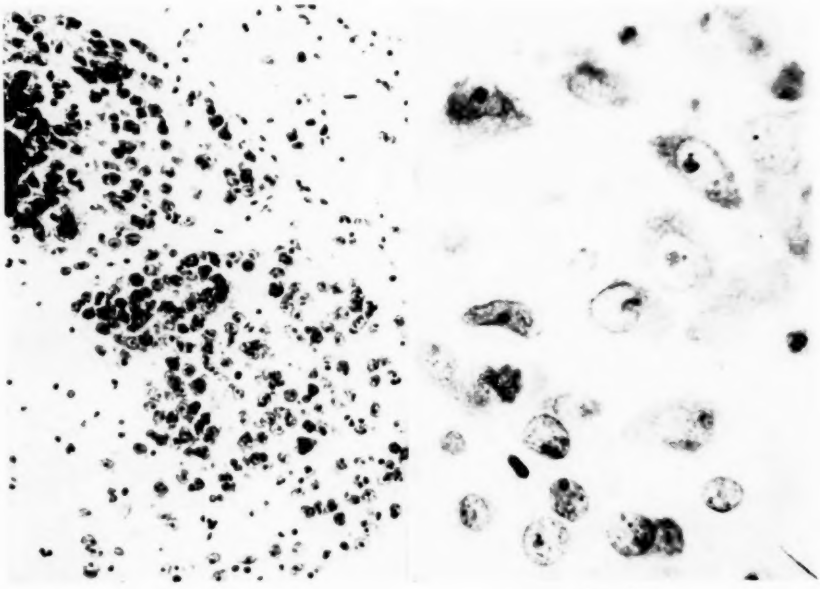


FIG. 8A. FIG. 8B.

Fig. 8A is a low power microphotograph of an abnormal cell group in the white matter of Ammon's horn. Higher power study (Fig. 8B) reveals that there are several different types of cells in this group and that many of the cells are nerve cells at various stages of development. Nissl preparation.



FIG. 9.—Low power microphotograph of the putamen, showing a group of abnormally large and poorly formed nerve cells arranged in a peculiar linear formation. Nissl preparation.

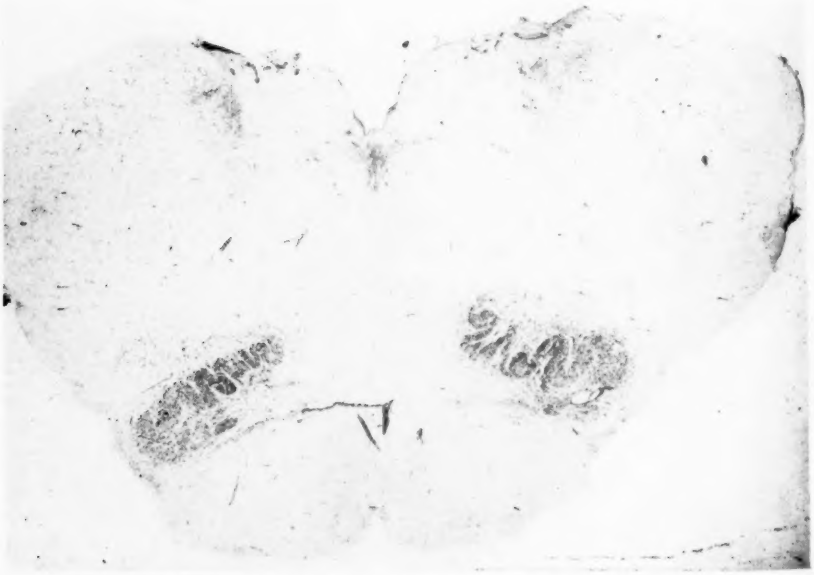


FIG. 10.—Frontal section of the medulla oblongata at a level near the middle of the inferior olives showing the dense bilateral fibrillar network in both inferior olives. Holzer preparation for glia fibrils.

persistence of a thick external granular layer. This layer was present throughout all portions of the cerebellum. Fig. 2A shows the persistence of this layer and it can be seen that the layer persists over the whole surface of the cerebellum, not being merely an occasional localized finding. Fig. 2B shows a higher power microphotograph of the tip of a typical leaflet showing clearly the well-pronounced external layer. In many places, this layer seemed to stream inward toward the internal granular layer. Fig. 3 reveals one of such areas. These areas, where there seemed to be a connection between the external and internal granular layers, were usually found at the bottom of sulci, although similar areas, but less intense, were found in places along the external surfaces of the leaflets. In these the cells of the external layer streamed into the internal granular layer, not only along blood vessels, but throughout the general substance of the molecular layer. The cells in these areas were like those in the external granular layer: small round cells with no cytoplasm, as revealed by the Nissl method, but with round, well-stained nuclei and some small dark nuclear inclusions. They resembled the cells of the internal granular layer. As studied by the silver method, these cells revealed likewise small nuclei, with no cytoplasm and no processes. In some places, the groups of cells streaming out of the external granular layer were so dense that they formed a small tumor-like mass with dense connecting streams between the external and internal granular layers. Fig. 4 shows such an area, where a thick, dense mass of cells in continuity with both the internal and external granular layers can be seen.

In addition to the presence of the thick retained external granular layer, there was a dense internal granular layer. The cells of this layer appeared, however, normal and comparable in every way to those seen in the normal adult cerebellum, though the layer appeared much more dense than the usual normal layer, extending well into what in the normal case constitutes some of the white matter of the leaflet. As compared to the normal cerebellum, we found here very little of the central white matter in the individual leaflets and we had the impression that this portion of the leaflet suffered by reason of thickening of the internal granular layer.

A third feature in the cerebellum was the abnormally wide molecular layer between the external and internal granular layers.

There were a large number of areas in which we found an abnormally great number of cells within this molecular layer. Most of these were the small round type, similar to those seen in the external and internal granular layers, but there were occasionally rather elongated elements, the long axes of some of which were placed parallel to the external surface of the cerebellum.

The Purkinje cells did not appear to be decreased or increased in number. Some of them appeared slightly larger than those seen in the average normal cerebellum and as a whole they appeared to be less clearly stained than in the average normal case. Whereas many of their processes stained very well with the Nissl or H. and E. stain, the bodies of many of the cells stained more homogeneously than normal and revealed a poorly defined nucleus. The white matter in the cerebellum revealed a general increase in the number of small round cell elements and also numerous groups of small round cells which were identical with those found in all other portions of the brain in the various radiations. These cellular elements will be described in more detail in our description of the cerebrum.

Cerebrum.

In order to compare the cerebral cortex of this case with the cortex of normal brains of average size and weight, blocks were taken from similar areas, and preparations were then made of numerous sections from these blocks cut at similar thickness, at the same angle, and stained with the same stain. It was possible under these conditions to photograph the cortex of various areas of our case alongside the same areas of control cases with the same degree of magnification. In general, our case revealed a greater total thickness of the cortex. In particular we were impressed with the greater thickness of the first layer and a greater density in the second and fourth layers. In the first layer, which was wider, there again appeared to be more numerous small round-cell elements than were present in the normal cases. In the second and fourth layers there were far more small round elements than in the normal control cases. The third layer did not reveal such normal well-formed and stainable nerve cells. It appeared that the distribution in this layer was much more irregular, that the axes of the nerve cells were more irregularly disposed, and that the cells appeared somewhat smaller and rather poorly stained.

The cortex throughout the whole cerebrum revealed in addition what appeared to be a greater number of satellite cells around the nerve cells. These appeared in many cases to be rather densely clumped together and were very probably oligodendroglia. At places the first layer showed sections of small blood vessels, around which one could find a rather dense grouping of the round nuclei very likely those of oligodendroglia. In the cortex, rather numerous cells were found with nuclear segmentations which we interpreted as mitotic figures. These were revealed with the Nissl stain as well as with the Hortega silver carbonate stain. The general features of the cortical findings just enumerated were present in all portions of the cerebral cortex. They appeared, however, to be slightly more intense in the frontal convolutions.

The white matter of all the cortical regions showed the same general features. There was a general increase in the number of round cells and there were numerous groups or clumps of small round cells which appeared to be identical with those seen in the retained granular layer of the cerebellum. Staining with all the methods used failed to reveal the presence of any cytoplasm or processes. Fig. 5 shows a few of these cell nests in the frontal area. The nests in general did not appear to bear any relationship to blood vessels and were found in all of the radiations. The size of the nests was variable, some of them being quite large. At times instead of nests, the whole white matter disclosed a general increase in the number of cells usually located all along the length of the blood vessels. In addition, throughout the whole brain stem, down to the dorsal columns of the spinal cord, the same increase in cells and same type of nest were found. In the sub-ependymal region surrounding the whole ventricular system the same apolar cells were seen either diffusely increased in number or forming clusters and large nests.

In addition to these nests of round cells the white matter revealed the presence of an abnormal number of isolated nerve cells, at times independent, at others mixed with the small apolar cells already mentioned.

In some places, particularly in the occipital and frontal cortices, there were considerably larger nests of cells confined entirely to the white matter. Fig. 6 shows such a nest of cells from the white

matter of the occipital region. This large group, for example, showed on higher magnification that it was composed practically entirely of glia nuclei. These nuclei were of various types and sizes and represented in all probability glia at different stages of its formation. Surrounding the vast area of glia nuclei and small round cells numerous rosette formations were found. Occasionally some of the small cells surrounding a small blood vessel would constitute a pseudo-rosette. Scattered among the various glia nuclei, one could again find numerous small round cells of the type described previously in the external granular layer of the cerebellum, in the periventricular nests and in the white matter nests.

In addition to the abnormal nests of round cells described above, and the abnormal nests of glia cells, there were some areas in the white matter, in which collections of nerve cells were found. One was impressed particularly by the presence of these nerve cells in the external capsule of the claustrum. Fig. 7 shows a low power microphotograph of two such groups. These groups showed considerable variation in the types of nerve cells and many of the cells appeared to be immature. Similar groups of cells partaking of nerve cell characteristics were also found in the Ammon's horn, where they were rather frequent. Figs. 8A and 8B show such a group of cells in the white matter of Ammon's horn, in low and high power, respectively. It can be easily seen from this Nissl preparation, that these cells are nerve cells. In a study of Ammon's horn in several other relatively normal post-traumatic death cases, such groups of cells were not found.

In the basal ganglia there were several groups of abnormally large nerve cells. These were arranged usually in rows. They were very large, dark and homogeneously staining nerve cells with poorly defined nuclei or none at all. Fig. 9 shows such a group of cells from the putamen.

The fact that in the midst of these nerve cell groups several apolar cells are seen of the same type as the scattered ones previously mentioned, and the fact that some transitional stages are found between such small round cells and the nerve cells, dispose of the doubt that we might be dealing here with heterotopia of the gray matter. We rather feel that the nerve cells developed from the small round cells which we considered as indifferent cells or medulloblasts.

One interesting finding in the lower brain stem was the presence of a darkly stainable fibrillary network in the inferior olives. Fig. 10 shows a Holzer preparation of the medulla at the level of the inferior olives. It can be seen that there is a dense network of fibers in the inferior olives which stain by this method. In order to control this finding, we stained several relatively normal cases at the same level. These cases ranged in age from 2½ years to 50 years. In none of them could such a network of fibers be stained with the Holzer method. Most of the fibrils stained by the Holzer method in our case are pericellular in distribution. They appear as circular whorls surrounding the nerve cells of the olive. Silver preparations for neurofibrils (Bielschowsky) fail to reveal a fibrillary network of silver staining fibrils, corresponding to that stained by the Holzer method.

In addition, the cells themselves of the olive do not appear to be normal in stainability, but reveal a rather homogeneous staining of the cytoplasm with a poorly defined nucleus. The cells likewise appear to be rather darker staining than normal. Higher power studies of the olive reveal the presence of a considerable number of glia nuclei, which might account for the dense network of fibers stained by the Holzer method. It would not account, however, for the essentially pericellular distribution of the fibrils as demonstrated by the Holzer technique. Similar studies with the Holzer method of the spinal cord at different levels revealed what appeared to be a more dense network of stainable fibers in the gray matter than could be detected in the normal contral material.

Summary of Pathological Findings.

The case presents, in general, a diffuse distribution of small round cells which we have preferred to consider as some type of indifferent cells. Their presence is noted most markedly in the external granular layer and in the lamina molecularis of the cerebellum and in the numerous nests found scattered throughout all the white matter of the entire nervous system and in the subependymal regions. In various places throughout the nervous system, abnormal groups of both glia cells and nerve cells in various stages of formation are found intermingled with the small round indifferent cells. The cortex appears to be increased in all its dimensions with an increased number of cells and an increased

thickness in some of the layers. Here and there abnormally large nerve cells are found. Numerous cellular figures are seen distributed throughout the whole brain which we interpret as mitotic figures. The olives show a peculiar pericellular network of fibers which stained by the Holzer method for glia fibrils.

Discussion.

The first question arising after observation of the histological findings of the nervous system of this patient is whether or not the entire process, resulting in a brain weight of 2050 grams, may be explained entirely upon the basis of a dysembryogenesis or retained embryonic defect or malformation or whether there is evidence of some neoformative process proceeding after birth. Most of the findings in the brain, including the retention of the external granular layer of the cerebellum, the sub-ependymal foci, the foci in the white matter, the presence of heterotopic groups of nerve cells and the retention of the well-developed second and fourth layers of the cortex are generally admitted as being of normal occurrence during embryonic life. It is unnecessary here to enter into a review of all the literature concerned with these various aspects of embryonic brains. It is only necessary to mention that the external granular layer of the cerebellum has been considered as usually disappearing within the first year of extra-uterine life.

The so-called sub-ependymal or germinal foci were described by His,[5] Ranke,[6] Wohlwill,[7] Ceelen,[8] Schwartz,[9] Globus, Schwarz and Goolker,[10] Davidoff,[11] Alpers,[12] in various pathological conditions and in studies on relatively normal infant brains. In general they have been considered as being normal in the late embryo or perhaps during the first few months of life. There have, however, been numerous opinions regarding this matter. Most of the authors feel that these centers disappear generally at the end of the seventh or eighth fœtal month. Ranke, after a study of many infant brains concluded that these foci are pathologic if seen at birth. Wohlwill felt that their persistence after a few months of extra-uterine life was definitely pathological. Alpers described them in a case of an infant four months of age, showing degeneration of the cerebral gray matter. Davidoff described similar foci in the parolfactory cortex in a case of Mongolian idiocy. Tuthill,[13] in a recent study of normal infant brains or of brains of infants dying from un-

related diseases, found sub-ependymal foci as late as 8½ months after birth.

There seems to be little doubt, therefore, that findings such as the sub-ependymal foci and foci in the white matter which were found in our case, may be considered normal in late intra-uterine or early extra-uterine life. However, to our knowledge none of these foci have been described in brains as old as 12 years. Here also, as generally in pathology, the question of the intensity of the process should be considered. In most of the earlier cases described, the foci were relatively small and only relatively numerous. In addition they disappeared rapidly after birth. In this case the foci are undoubtedly more numerous and considerably larger in size than any of the foci described in normal infants' brains. Moreover, in some areas such as the occipital and parietal lobes, the extent of the foci is quite impressive. Finally, the very considerable number of cells streaming from the external granular layer of the cerebellum toward the internal granular layer points definitely to a still active process of neoformation insofar as the thickness of the granular layer is quite above the limits of the normal.

One of the most important findings in our case and one which led to the original impression as to the essential underlying process throughout the whole brain is the retention of the external granular layer of the cerebellum. This layer was first described in 1858 by Hess [14] and he was the first who recognized its transitory characteristics. This transitory granular layer apparently occurs only in animals which possess a large developed solid cerebellum such as the bony fishes, birds and mammals and according to Schaper (1894),[15] it is absent in all of those animals in which the cerebellum has a very simple form such as the cyclostomes, amphibia, reptiles and selachians. Schaper, later,[16] spoke of this layer as a secondary germinal layer and felt that it consisted essentially of indifferent cells which later in development go to form other nerve cells or glia cells. Many authors since that time have concerned themselves with the origin and destination of the external granular layer. Summarizing the controversial literature, we feel that the conclusions of the more critical contributions would seem to be that the embryonic granular layer stands in some relationship to the building up of the cerebellar cortex, with regard to both its granular cells and its glia elements. The first or inner ventricular germinal

layer, on the other hand, becomes the place of formation of the ventricular ependyma, the glia of the sub-cortical white matter, and of the inner nuclei. In the new-born child, according to Jakob and Hayashi,[17] the embryonic granular layer has become much smaller and the molecular layer has become well developed. The last of the embryonic granular layer, according to Jakob, may persist until the 9th or perhaps even the 11th month of extra-uterine life.

Whereas most authors agree that the embryonic granular layer which is normally present in late embryonic and early extra-uterine life disappears by the end of the first year of the extra-uterine life, there has been considerable disagreement as to the essential rôle played by this layer. The importance of retained embryonic rests as possible foci for the origin of tumors occurring later in life has formed one of the important theories for the origin of tumors (Cohnheim). This has been especially interesting when one applies such a hypothesis to the origin of some tumors of the cerebellum. The whole question, for instance, concerning the medulloblastomas has been concerned with the hypothesis of Schaper,[16] who claimed that some of the cells of the external granular layer may remain indifferent and may go to form either neuroblasts or spongioblasts or may remain even entirely indifferent. Such indifferent cells or medulloblasts have been claimed by Bailey and Cushing [18] to be the cells of origin of the medulloblastomas. In a recent paper, Stevenson and Echlin,[19] in describing a few tumors supposedly arising from the external granular layer of the cerebellum, called these tumors granuloblastomas, since they felt that the cells of the external granular layer or granuloblasts went to form neuroblasts and not spongioblasts. It was of interest to us, therefore, to note in this case the thick external granular layer retained to the age of 12 years and associated at places in the cerebellum with what appeared to be a very definite increase in the thickness and extension into the internal granular layer. As some of our pictures show, there was a definite streaming of this external layer in places into the internal one and in places the increase in number of cells became so marked that a definite nodular formation resulted, formed completely of cells of the external granular layer.

Such a nodular formation is a definite indication of the neoformative tendencies of the elements to the point of giving origin to a nodular mass.

Our interest in these cells, aside from the question of possible source of origin for some of the cerebellar tumors, was intensified by the similar appearance of these cells to those seen in the subependymal foci, the white matter foci, and the various layers of the cerebral cortex. In all of these places and scattered profusely through the whole nervous system all of these cells appeared alike. In most places, no cell body or processes could be obtained with any of the stains which we employed and the intra-nuclear pattern appeared essentially alike with both the Nissl and silver stains. The question naturally arose as to whether we are dealing here with a diffuse scattering of cells, basically the same as those of the external granular layer of the cerebellum, and, possibly retaining bi-potentialities enabling them to differentiate either into spongioblasts or neuroblasts. From a study of the sections of various portions of the nervous system, especially of the occipital pole, of the pre-central convolution, of the external capsule of the claustrum, and of Ammon's horn, we obtained several interesting suggestions. First of all, study of some of these areas, particularly the large area in the occipital lobe, revealed, in regions where the small round cells were very plentiful, not only these cells, but also large groups of glia nuclei, as well as transitory types of nuclei between the various types of cells. It is of interest that although these nuclei could be well stained, great difficulty was experienced in staining the cell bodies. The possibility is suggested that further differentiation of the small round elements into cells of the spongioblastic series must occur in order to develop into glia elements.

On the other hand, in some places of the cerebrum, associated with the groups of small round cells, there were found numerous cells of the neuroblastic series in places where such cells are not normally found in the adult brain or in the brains of 12-year-old children. This was especially noticeable in the external capsule and in Ammon's horn. In these places cells of the neuroblastic series ranging from very immature cells to well-developed nerve cells were found, associated with the small round cells. This suggested the possibility of a differentiation of some of the round cells of the white matter foci into cells of the neuroblastic series. It also eliminates the doubt that we are dealing here with a pure condition of heterotopia inasmuch as transitory morphological stages are found between the small round cells and the nerve cells.

In light of all the above findings, we feel that, unless some special staining method will in the near future enable us to differentiate the cells of the external granular layer from those of the various foci scattered throughout the brain, we are at present justified in advancing an opinion as to the similarity of the cells from these various regions and as to the bi-potentialities of these cells, enabling them to subsequently differentiate, under proper conditions, into cells either of the spongioblastic series or of the neuroblastic series. We would thus tend, in addition, to support the original opinion of Schaper, that the cells of the external granular layer might become either neuroblasts or glioblasts.

To be sure, the mere presence in a brain of findings such as the ones which are normally present at some stage in the embryo does not solve the question as to whether the entire process in a case is one which can be explained completely on the basis of mal-development or whether there is added a neoformative process. In our case, however, we feel that the process is essentially and basically one of retained embryonic development but that there is also an added element of neoformation. By the last term we imply merely the occurrence of a process which does not normally occur in brains after the earliest postnatal stages of development and which would, by its occurrence, tend to produce an abnormality as regards the number of immature cells in the brain.

In favor of such an interpretation, we mention again the quantity of the embryonic elements. Many of our findings, although present normally in the embryo and perhaps in early extra-uterine life, were definitely more intense than those findings in normal early life, thus clearly indicating the increase in these embryonic elements even after birth.

Another point in favor of a neoformative process going on constantly during life was the presence throughout the whole brain of numerous cells revealing nuclear figures which we have interpreted as karyo-kinetic, thus indicating frequent mytosis throughout the brain. Whereas this may normally be present to a small extent in normal brains the intensity of the process here tended to reveal a more active, constantly continuing process.

Finally, a nodular formation such as the one seen in the cerebellum in which a small tumor-like formation was quite definite

is not a normal finding at any time during embryonic development and certainly points to the neoformative tendencies of the embryonic elements.

To be sure, the case has supplied us with no definite figures concerning the growth of the brain from birth on. The mother reported the birth weight as 16 pounds, which on the face of it would seem questionable. If such were the case, however, a large brain might have been present from birth. To be sure, only rough measurements have been possible in this case to determine any increase in the size of even the head, or the brain. An increase of $2\frac{3}{4}$ inches in the circumference of the head was found on two measurements at the 9th and 12th years respectively. Whether this is a normal development in the size of the head we cannot accurately say.

As to the underlying mechanism of the neoformative tendency of the embryonic elements, we have very little information. As has been often recognized, the cells of the embryo follow a certain sequence of development in terms of time and location. Primitive cells of the embryo, once having reached their ultimate destination, may then fulfill their ultimate development in regular temporal sequence. However, cells which have not reached their ultimate destination in the nervous system may retain peculiar types of embryonic activity. It seems possible that such may be a basis for the neoformative tendencies at some places in the brain of our case, notably those places where the apparently indifferent cells may have gone on to form cells either of the spongioblastic or neuroblastic series. How far such a neoformation would go is difficult to say. It is known, however, that in addition to malformation a neoformative tendency has been considered to be the basis of tuberous sclerosis. Globus,[20] followed by Ferraro,[21] have considered tuberous sclerosis a process of diffuse neurospongioblastosis in which here and there some of the embryonic elements undergo the process of hypertrophy. In other areas the embryonic elements under the action of unknown stimuli undergo a definite process of neoformation, leading to the development of definite tumor-like formation, the smallest expression of which is found in some of the intraventricular nodules and the largest expression of which may result in a big tumoral mass composed of mixed elements of the neuroblastic and spongioblastic series.

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THE EPILEPSIES.*

By FOSTER KENNEDY, M. D., New York.

Mr. Chairman and Members of the Section: I am here by the invitation of our President, to try to "spread out the epilepsies"—I think that was Temple Fay's idea. For too long epilepsy has been looked upon as a disease entity not by all here but by some here. As a profession, probably, we are rather prone to mistake our recognition of a condition for its explanation. Not very often do we confess to ourselves that we have no real knowledge whatever of what manic-depressive insanity is, that we have no knowledge whatever of what schizophrenia is. We conceal our ignorance rather like a squid in a great sea of dark verbiage, and the layman is apt, hearing us talking, to come to the conclusion that we know something fundamental of what we are talking; whereas regarding those two conditions we know truly nothing at all. We can describe phenomena, we can empirically prognosticate from our experience, but as regards the basic nature of the condition we are ignorant.

It is almost so with regard to what we call "epilepsy." Jackson has left us with a description of epilepsy as a sudden excessive, involuntary, neural discharge, and it is necessary, I am sure, to add that that neural discharge in order to be clinically epileptic must interfere either through expansion or deterioration with the stream of consciousness.

These phenomena are apparently responses on the part of neural mechanisms to various forms of noxious stimulation. The kind of phenomena produced by these responses depends more on the kind of function of the neural mechanism which responds than on the nature of the stimulus that produces the response. It would be strange if it were not so because each nerve cell and its annectants must be like a Leyden jar, storing energy for orderly distribution, but capable of leakage and capable of violent discharge. That simile

* Read at the ninety-first annual meeting of The American Psychiatric Association, Section on Convulsive Disorders, Washington, D. C., May 13-17, 1935.

in a way gives my thought regarding the frequency of epileptic phenomena. It surely is not too much of an exaggeration—and it may be an understatement—that the normal individual of fifty cannot have arrived at that age without some form of epileptic phenomena having occurred in his life. This is a conception of epilepsy which might be set against the layman's conception of epilepsy and the conception of epilepsy held by a great many doctors, that epilepsy is necessarily a progressive, practically incurable, and always deteriorating disease.

What we saw this morning regarding electrical phenomena, electrical changes and electrical tension on the brain, producing larval epileptic states, occult epileptic states, epileptic states which did not strike the consciousness of clinical observers, is an indication of the essential instability, the necessary instability of our nervous systems. Life is a state of unstable equilibrium, occasionally destabilized; and if it weren't for that instability we would not have the flexible capacity of bending to meet the stresses of our lives; our epileptic nature is an asset to each one of us.

One might speak as I have before (and Temple Fay has asked me to speak of it again) of the epilepsies as though they were a spectrum—a spectrum the colors of which blend the one into the other. In that spectrum is the great fit, the major attack, following an ordered pattern of sudden unconsciousness and decerebrate rigidity, followed, apparently due to mesencephalic block, by the disordered resumption of control by the cortex, followed by exhaustion, followed by resuscitation. These are the physiological happenings in the great fit of which it would seem that *petit mal* in its various gradations is but a fragment. In that same spectrum are many other forms of seizure. By giving them special names and by not being much associated, as neurologists and psychiatrists, with them clinically, we have obscured our own consciousness that eclampsia is epilepsy, that uremia is epilepsy; and we find the epileptic effects of insulin changing the content of blood sugar, alterations, as was said this morning, in the metabolic condition, the metabolic rate of the brain. All such conditions can produce states of instability in the nervous system exciting to discharge.

It is almost as if the brain was in the state of awareness against anything that would interfere with the proper oxygenation of the

cell. Fay has suggested that the fit itself was a "whole brain" response to offset oxygenation and anoxemia. That is to my mind the making of a "super-state" in guard over the brain itself. I would prefer not to go so far, for I doubt if our knowledge permits us to go so far, but I would go to the extent of saying that any form of deoxygenation of the cell increases the irritability of the cell, and that energy discharge is a response to anoxemia rather than an effort to offset it.

I think this is true as seen clinically in the epilepsy of the alcoholic brain. It is true of the brain of the paretic. It is true of any form of increased water content of the brain, that the film of fluid interferes with the oxygenation of the cell and permits or precipitates the discharge of its energy. I think it is true also in a domain in which I have been interested for a good many years: an urgent response by neural centers to irritants producing localized brain edema. I believe that localized collections of fluid can produce such states of deoxygenation of cells as to produce an epileptic discharge, an epileptic fit.

I am speaking in this general way simply to put before you the idea of the ubiquity, the generality, the commonness of epileptic phenomenon. Undoubtedly, too, the vasovagal attacks, so-called by Gowers, are discharges along sympathetic paths. We have, as it were, rediscovered the epilepsies of the sympathetic system. Further, the psychic equivalents with which we are familiar are undoubtedly an expression of disordered integration of the brain of the same nature exactly as produced in other parts of the brain—appearing as sensory or motor phenomena. We are more familiar with and can visualize more easily in our minds motor phenomena we have seen with our eyes, but the psychic phenomena too must have a somatic origin. The psychic phenomena of epilepsy should suggest the somatic origin of many of the psychoses.

I began by saying that we are unaware of the real morbid happenings in the two greatest groups of the psychoses, and when I say the two greatest groups of the psychoses I believe I am on firm ground in saying that the commonest nervous diseases, along with epilepsy, are the various gradations of manic-depressive psychoses, or pre-psychoses, many of which never reach the place where they are clinically observed as being pathological. They have no doubt

a somatic fundament which has yet to be uncovered, and the work such as we have been hearing this morning in brain and sympathetic electrical tension and cortical metabolism with chemical changes, and the effect on the circulation of amino-acids in the body, are perhaps the gateways through which knowledge of the true nature of these phenomena and the phenomena of the epilepsies will be attained.

A FOLLOW-UP STUDY OF HOCH'S BENIGN STUPOR CASES.*

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Introduction.

The monograph of benign stupor by Dr. August Hoch appeared posthumously in 1921. Since that time the concept of benign stupor has made its way into the literature and classification of The American Psychiatric Association. There has been no follow-up of the original study. Thirty years have elapsed since the first of these cases were studied. The majority of these patients, now living, are between 45 and 60 years of age. In the belief that the time was now ripe to determine the validity of this concept, this follow-up study was made by the writer, as undoubtedly Dr. Hoch would have done had he lived.

Hoch classified benign stupor as a phase of manic-depressive psychosis resulting in a favorable prognosis. It may occur alone or may replace a manic or depressive attack. It is characterized by apathy, inactivity, negativism, thinking disturbances, and thoughts of death.

This study was pursued along strict descriptive lines. This does not mean that the dynamic approach would not have been feasible, but to quote Dr. Otto Fenichel: "A psychoanalytical theory of psychosis by no means implies that psychiatric research is superfluous. The aim of such an analytic theory is only to supplement psychiatric knowledge at certain essential points. Regardless of such a theory there remains the field of somatic problems which cannot be attacked by psychoanalysis, and on the psychological side, the purely descriptive studies."

Two years were spent in a search for the original material. Hoch in his work mentions 40 cases as a basis for his conclusions, but of this number only 19 were so described that the records could

* Read before the New York Neurological Society, Academy of Medicine, New York City, October 2, 1934.

be located in the hospital. Hoch mentioned the other 21 cases to illustrate a point or two. His colleagues were unable to furnish clues for better identification. The writer searched the hospital index files for the years 1902 until 1916 (periods of possible admissions of these cases) but the fragmentary data was insufficient as a guide and the search fruitless.

Of the 19 cases located one died while under Hoch's observation. Of the remaining 18 only 13 were traced. The other five could not be found despite an exhaustive search. Of the 13 traced nine are living (six [1] in various state hospitals and three in their homes in New York, New Jersey and California respectively), four are dead (one died in Ireland after deportation, two died after re-admissions to M. S. H. and one somewhere in New York).

The writer personally examined six cases and the information from the seven others was secured from state hospital records which was adequate enough for formulation of certain conclusions. Two cases were not examined because of the personal request of one and the antagonism of the relatives of the other.

The classification of Hoch of deep stupor, partial stupor, suicidal and special cases was not retained by me. The conclusions are based on a review of the original case records plus the additional facts obtained in my follow-up.

Patients in Hospitals.[2]

Mary F. (Case 3), admitted 1902, 21 years old and married. Father alcoholic, mother died of tuberculosis. The patient was in an orphanage from five until eight when father remarried. At 12 she went to do housework, was considered bright, cheerful, industrious but stubborn.

She married her seducer at 20. Her father made life unhappy. Following christening of the child 19 days after birth she developed mental symptoms.

The first year and a half in the hospital was characterized by negativism, rigidity, apathy, retention of saliva and impulsive behavior. At the end of two years she improved but regained no insight and was paroled.

She returned to husband, gave birth to five other children, but remained unhappy. Seven years before her second admission she developed ideas that her husband killed her father. She developed a frank paranoid state, accusing

[1] Since the writing of this paper one has been discharged from the hospital.

[2] The brevity of these cases was made necessary by the restriction of space allotted to me. More detailed information of these cases can be obtained from the author upon request.

her husband of infidelity, neglected home and children, and becoming unmanageable, was rehospitalized in May, 1917.

Her residence still continues. At first she presented a picture similar to her first attack. After the acute symptoms subsided, regression of her affect and thought disturbances with secondary psychotic manifestations has been a picture which she presented for many years. At present (1934) she is dull, listless, indifferent, hallucinatory at times, her stream is disconnected but sensorium is clear. A sample of her production follows: (What's your name?) Gives maiden name. (What do they call you?) "They call me Puffisky—that's a Jewish name." (Spell it.) "P-h-u-l-f-i-l-s-h-a-l-e-r-s-k-y." (What does that mean?) "I don't mean that they made from a delification time going around from one home to another, everybody is different, some people have a glorious time smoking, chewing, smoking, drinking tea." (How do they treat you here?) "They treat me all right, it is the employees going back and forth, the different nations, actions and saying going back and forth." When asked if people spoke about her she said, "They must be" and looked at the ceiling.

This woman's psychosis is characterized by two attacks with a 13-year remission.

The second attack has continued for over 18 years. At first she presented a picture similar to the first attack. But the present mental picture is indicative of deep regression. She is actively autistic; her productions are scattered and contain neologisms; her affect is inadequate and inappropriate. Her sensorium, however, is clear.

In the opinion of the writer, this subsequent course and mental picture clearly indicates a case of schizophrenia. The earlier attack was but part of this progressive disease process.

Margaret C. (Case 10), 23, single, admitted in November, 1913. Psychosis developed following her oldest sister's death at parturition two months previous.

She worked for seven years in one place before illness and was considered bright, cheerful and conscientious, but sensitive and religious. She had a strong attachment to her mother and oldest sister, preferred the company of women. Sister's pregnancy worried her, the death upset her. After the sister's death she showed a greater interest in religion. Seven weeks later she suddenly refused to eat or get out of bed, spoke of the dead sister and of her desire to enter a convent. She was committed a week later imagining herself a nun, refused to answer questions and required tube-feeding.

Following admission she remained mute and negativistic, resistive and laughing without apparent reason. For a year she showed a tendency at self-injury with resultant cellulitis of the right forearm. She was seen muttering and admitted auditory hallucinations, delusional. Blocked—"starts to say something but only gets out something very vague and then says something else

in a very vague way." Emotional responses inadequate and laughter "out of proportion to stimulus." Paroled after two years. Diagnosis: Allied D. P., much improved, changed to Allied M. D., recovered upon discharge.

Following parole she returned to her former position but left it suddenly after 11 months saying she could not keep up with the work, and procured voluntary work in a parochial school. A year later, following a denial of her request to take care of her dead sister's children, she became upset. Two weeks after this she suddenly disappeared from mass, ran to the parochial school saying that God sent her and that it was her home. Becoming excited and resistive she was committed. At the hospital she was noisy, resistive, facetious, laughed without known provocation, expressed bizarre, irrelevant and disconnected ideation. Remained one year, was paroled though not considered well. Diagnosis: Manic-depressive, manic.

She resumed her parochial school duties and continued for about six years. An accident to a child upset her and she left suddenly in August, 1925. A month later she entered an order, denied insanity of herself and a brother who died in M. S. H. of D. P. A week later she suddenly became disturbed and assaultive and was recommitted.

Her behavior in the hospital for the past nine years is similar to previous behavior. She is continuously restless, uncooperative and laughs in "a convulsive way." Her activities are purposeless and remarks silly and unrelated. Recently she was described as "hearing various voices" and "talks and laughs to herself."

Recent examination discloses that she is odd in behavior and overactive; refuses to be interviewed. Her chatter is incoherent and is accompanied by shrill unrelated laughter. Religious and sexual content is expressed delusionally. In answer to her name said, "Miss Margaret Helen C. I have three sisters besides myself, understand. If Mayor Walker can give you the authority to question me, I prefer to speak to Mayor Walker. You think we are converts (rest rapid and unclear). I have a lady doctor, you could travel all the world before you could find the like of her—she is my mother's student. Do you think I am my brother's wife, do you? You wouldn't be sitting here—how long have I been out here on the street?" Her sensorium and orientation are intact.

The psychosis in this patient has continued over 20 years. While she has had two remissions lasting two and six years respectively, the records and subsequent history disclose that she never returned to her pre-psychotic level, nor really ever made an adequate social adjustment. One might argue that since she taught in a parochial school, she was well adjusted. However, one must view this phase of her life with her conflicts in mind. This was an escape from her former situation, as the history discloses, and therefore, does not represent a healthy adjustment. It merely is an apparent temporary alleviation of her active psychotic state.

The records further disclose that the attacks were characterized by impulsive acts. Her ideation was also characterized by association disturbances, irrelevant and unrelated replies and blocking. Her emotional tone was always inadequate. There was frequent unexplainable laughter which is best described by quotations from the record; "hearty, of frank elation and not a silly giggle which appears to rise from internal association rather than internal happenings," or "the definite cause of which cannot be ascertained." Similar descriptions are numerous.

Of the 12 years spent in a state hospital, the last nine years were continuous.

In reviewing the entire history, I am led to conclude that we are dealing with a case of schizophrenia. The chief basis for this diagnosis is the marked personality disintegration manifested by her inability to return to her prepsychotic level during her remissions. The protracted course of the disease plus the definite splitting of the psyche as is characterized by the marked disharmony between content, behavior and affect and a total lack of insight, point strongly to the conclusion that one is dealing with a schizophrenic psychosis.

Rose Sch. (Case 6), 28 years on admission August 22, 1907. She is mentally deficient with a similar family history.

Mental symptoms developed following a gynecological operation. Previous to operation she suffered from metrorrhagia for about two and a half months following fourth childbirth. Left ovarian abscess and pyosalpinx removed. A week after operation she became morose, tearful and thought the doctors wanted to shoot or poison her. Recovered from operation. At home she continued depressed, talked nonsense, finally became mute and after attempting suicide was hospitalized.

At first she was resistive, inaccessible and catatonic. She recognized but refused to talk to visitors. Displayed some perception disturbances. After two months put on weight but remained quiet and seclusive. Would not discuss her former delusional ideas saying: "I can't think of them," "I can't remember them anymore," or "Oh yes, I have forgotten all that," "I imagined I heard them say they were going to shoot me." She could not correlate dates. Was paroled December, 1907, regaining no insight. Diagnosis: Allied to infective exhaustive psychosis.

She kept house for the next 25 years, displaying no apparent mental symptoms. She worried over present depression and some gastric disturbances. Then suddenly complained to her husband that a neighbor called her a whore. She heard her say "that's the reason she has $5.00 because she walked on Broadway." She continued to hear whispering and thought they were going

to kill the husband and children. She became fearful, stopped talking, acted peculiarly and was rehospitalized.

Following admission she was agitated and depressed, became disinterested and inactive. She kept saying: "Yes, I could hear them," "I think they were going to harm me," "People around where I lived spoke about her."

Physically, no gross findings except for early retinal arteriosclerosis. B. P. 120/80, trace of albumin in urine. Serology: cells 7; globulin 1 plus; spinal fluid Wassermann negative. Blood Wassermann 3 plus alcoholic antigen, 4 plus chol. antigen, Kahn 4 plus, Colloidal gold negative.

She remained seclusive, idle, resistive to nursing care and inaccessible to questioning; complained of vertigo and her hopeless state of mind; hazy on dates.

When seen by the writer a month after admission she displayed negativism and resistiveness. No retardation was noted. She was fearful and kept throwing furtive glances. She remained uncommunicative except for fragmentary remarks. A month later no change noted. Up to the time of her parole July, 1933, she was seclusive and negativistic, from which she was never entirely recovered. She remained uneasy during interviews. Just before parole she spoke fairly freely, displayed no adequate emotional response and had no insight into her delusional ideas. She threatened to take the matter to court if annoyed again by her neighbors.

This patient is a dull normal individual whose psychosis is characterized by two attacks 25 years apart.

A study of the records reveals that both of these psychotic attacks are similar in character. It is also of extreme importance to note that both attacks are related to organic diseases. The first attack occurred following an operation for a left pyosalpinx and ovarian abscess with a history of metrorrhagia of two months' duration following childbirth (from general hospital record). The second attack occurred during the organic involutional period.

In the first attack, the patient's mental picture was characterized by paranoid delusional content. The diagnosis made then—allied to infective exhaustive psychosis—indicates that she was considered an organic reaction type.

During the 25-year interval, she made a fairly good adjustment. Her social life was circumscribed, and she spent the major portion of her time as an "old-fashioned mother who loved her children and took good care of her home." Then quite suddenly mental symptoms developed.

The second attack was characterized by a paranoid hallucinatory reaction, plus negativism, resistiveness, anxiety, fear and agitation. Her lack of production was due not to retardation, but to her

refusal to talk. She remained inaccessible following her improvement. Some sensorial disturbances were present, but whether they were on an organic basis or due to her lack of cooperation could not be ascertained. A positive blood Wassermann was discovered. This time she was diagnosed as psychosis with cerebral arteriosclerosis.

This case suggests that a lowered bodily resistance due to exhaustion or a chronic infectious disease occurring in a susceptible individual resulted in a corresponding lowering of her psychic integrity, and the elaboration of a paranoid projection mechanism which tended to offset her threatened somato-psychic component. The reason for this type of reaction can perhaps be attributed to the fact that her basic personality is schizoid.

On the basis of her present attack the writer can find no evidence of any benign features. Even at the time of her parole she manifested no insight into her delusional ideas which she still had. The records also disclose, that at the time of her discharge, she still manifested little insight. In view of the present history, and the retrospective study of the earlier attack, the writer finds that the entire symptom complex suggests a psychosis which belongs to the group of psychoses with other somatic disease.

Charlotte W. (Case 12), admitted October 21, 1905, 30 years old. Father died at 34 of Bright's disease. Mother, a brother and maternal aunt excessive alcoholics; and a sister, mother and maternal uncle were in mental hospitals.

She married at 23, and was well up to the birth of second child. Three days after its birth her mother, in drunken state, broke into her room; following this she became fearful and downhearted. While in this state she considered herself a bad women because she did not confess to her husband a premarital attempted assault. The depression lasted six months. She appeared well for the next four years. The mother's and brother's excessive drinking led patient to move away from them. Six months later she began to complain of anorexia and insomnia. A burglary in the adjoining church frightened and depressed her. The reprimand of her priest and husband for her induced abortions upset her. She expressed thoughts of suicide and was hospitalized.

Her first residence lasted a year. The first two days she seemed natural; later she went into a semi-stuporous state and finally into a catatonic state with muscular rigidity and constrained positions. The emotional response while in this state for the next few months fluctuated between indifference, distress and perplexity. She expressed religious delusions, she felt that the chairs and floor were full of electricity and knew what she was talking about. Blocking was present. She misidentified people yet was correctly oriented for time and place. During this catatonic state she gained weight. While in

an exalted and excited phase she wet, soiled and smeared herself with feces. She improved yet insight remained superficial and was discharged as recovered. Diagnosis: Allied to M. D.

The patient had a number of depressive attacks without hospitalization. She was rehospitalized in New Jersey in October, 1917, because she suddenly refused to eat, believing she would soon die; she also expressed the wish to have one of her children go along wth her. After a brief residence she eloped from the hospital. Diagnosis: Manic depressive, depressed.

During the subsequent period her husband died but his death did not upset her. She became quite religious.

Before her readmission in May, 1930, she again began to have insomnia, talked in a rambling manner expressing delusions against her neighbors, and acted queerly and excitedly.

Upon examination her vagina was found packed with rags and toilet paper and had a foul discharge. Her behavior in the hospital would suddenly fluctuate between periods of depression and negativistic states. She expressed paranoid and grandiose delusions and was dominated by auditory hallucinations. When seen by the writer in September, 1934, she was apprehensive, resistive and suspicious. She said: "They seem to watch everything I do," "The worst words you can use—they call me names." Then suddenly turning to the piano said, "That sounds like Regina (daughter) now. It sounds as if she is in that piano there." When asked if they did anything to her food said: "I think they do sometimes"—"I had that idea when I was home that they did that to the water"—"Sometimes I thought they did that next door"—"Sometimes I smelled the whole place with gas"—"I think they (neighbors) did that to suffocate me." She is frequently agitated and requires tube feeding.

This psychosis which began in the 26th year of the patient's life, is characterized by repeated attacks some of which required hospitalization. Depression was common to all attacks, but stupor was present only during the first admission. Following her earlier attacks, it was said that she made good remissions. However, my follow-up study revealed that during the intervals between her hospitalizations, she was never completely recovered. The subsequent history disclosed that she would become upset occasionally, especially during her menstrual periods. The reasons for the onsets of her depressions were not entirely adequate.

From the study of the first admission the initial symptoms of the depression appeared to be adequately related. However, we find many incongruities in the stupor phase which soon set in. There were sudden changes from stupor and rigidity to relaxed states. The patient would be found walking around in a confused manner, or wandering aimlessly through the ward. She would con-

verse freely and then suddenly block or become completely mute. At other times she would speak in half-uttered phrases, or make lip movements without audible sounds. In the preoccupied phase she did not reply freely to questions, but when asked to count from 1 to 20, would do so rapidly.

In her stuporous state she was found lying in her bed with her head off the pillow, a posture which one rarely or ever sees in depression. In this state she was also observed to have gained weight. During another catatonic episode she was correctly oriented. All this is opposed to the stupor in depressions. At another time she expressed bizarre ideas in a clear setting, and also while in a state of exalted adoration and excitement, smeared herself with feces. Throughout the greater portion of this attack, her emotional tone was predominantly perplexed.

In her subsequent attacks which also set in without adequate reason, she displayed incongruous symptoms with regressive behavior. An example of the latter was the discovery of rags and toilet paper stuffed into her vagina. During her subsequent hospital period, her behavior varied from silly and playful reactions to impulsive conduct. She was described throughout as resistive, seclusive and antagonistic. She expressed delusions of grandeur, hallucinated, and at the same time was correctly oriented. When the writer examined the patient as late as September, 1934, he found the patient giving expressions to auditory hallucinations and ideas of reference. At the same time the patient was correctly oriented, relevant in her productions, and appeared depressed and somewhat apprehensive. Her emotional tone, however, was inadequate.

The patient presents a very guarded attitude, does not talk freely thus creating the appearance of apparent depression. However, a careful study soon discloses that the many incongruities between the patient's behavior, productions and affective reactions are dominant features which the writer maintains are the important diagnostic criteria. It is common knowledge that many schizophrenias begin with depressions, and that some schizophrenics even after many years may present depressive affect. It is the adequacy of this affect in relation to the content which is important in the evaluation. Frequent unexplainable interruptions in stupor is, in itself, opposed to a benign reaction. Rapid fluctuations in mood

with impulsive and unexplainable behavior is a malignant feature. This impulsiveness and rapid fluctuations of mood are frequently mentioned throughout the patient's subsequent hospitalization.

It is also interesting to note that with her first reserve broken down, one finds evidence of hallucinations, delusions and projection mechanism in the subsequent period of her hospitalization.

It is well known that manic depressives show no alterations in their personality during the interval periods. In this case the subsequent follow-up disclosed that the patient was never really well between her attacks. While the patient manifests a number of manic features, nevertheless, one also finds a great many schizophrenic symptoms. Bleuler has said that "all manic depressive symptoms may appear in schizophrenics but not the specific schizophrenia symptoms in the former disease."[3] Strecker and Ebaugh repeatedly make reference in their book, that in the affective psychosis there is definite relation among the primary mental symptoms. Thus any disturbance or incongruity among primary mental symptoms indicates a schizophrenic reaction.

In view of the above facts, the writer is of the opinion that her earliest symptoms were expressions of schizophrenia, and that her subsequent behavior, which is definitely regressive in character, leads to the conclusion that this is a case of schizophrenia.

Pearl F. (Case 9), 24 years old, admitted July 26, 1913. Parents died in patient's youth. A paternal aunt was insane. Patient came to this country at the age of 17, secured domestic work. In April, 1913, became melancholy and considered life futile but did not attempt to commit suicide. She refused to eat believing the food was poisoned, accused herself of doing a shameful act, complained that people were laughing and looking at her. She spent two months previous to admission in a private sanitarium where she was retarded, resistive and required tube feeding. Was removed unimproved.

During her two years' residence at Manhattan State she was resistive and negativistic, remaining in bed most of the time. Was irritable and assaultive when interfered with. Soiled and wet herself. Not communicative with examiner but spoke to patients and nurses. Her affective reactions were silly and inadequate, and her productions fragmentary. While described as depressed she was frequently seen "smiling and hiding under the bedclothes, and laughing and making grunting noises, or appearing depressed yet heard singing."

[3] Bleuler, Prof. Dr. Eugen, Textbook of Psychiatry, the Macmillan Company, N. Y., 1924, p. 458.

She became more accessible as she improved but never would discuss freely her sexual behavior. At the time of discharge she appeared indifferent and displayed no interest in her present or former condition. Diagnosis: Allied to D. P. Recovered.

During the next 11½ years she had many attacks of depression but was not hospitalized. Was sexually promiscuous, had two abortions and one illegitimate child. In 1927 she was hospitalized for two and one-half months because she became excited following a quarrel with her employer. Then she was considered as suffering from a depression.

The present hospitalization took place in June, 1929, after being swindled out of some money. She became excited and assaultive. Said she was framed and hypnotized by certain people and that her food was poisoned. Soon after admission she was assaultive, noisy, overactive, negativistic and extremely antagonistic and inaccessible. During the next one and one-half years she remained in bed in a semi-flexed position and was resistive to any interference, requiring tube feeding. After leaving her bed she would crouch in corners with her face to the wall. She mutilated herself by scratching and picking. Remained mute and inaccessible except for an occasional "I don't know," "I don't want to eat," etc.

In 1932 she expressed ideas of reference, persecution and auditory hallucinations. She was negativistic, inaccessible, but no retardation noted. Her emotional reaction is characterized by whining and frequent tearing but is also silly and inadequate. She is still uncooperative and there is no essential change in her behavior.

The follow-up study revealed that the patient had many attacks of depression without hospitalization. The character of these attacks is not known. Her last admission has continued now for almost six years. The hospital records reveal that after an initial period of excitement her entire behavior in the hospital and during her present duration of residence, is characterized by a typical catatonic reaction. She crouches with her face against the wall, remains seclusive, resistive and negativistic. She mutilates herself. She is not very accessible, and admits definite auditory hallucinations. Her emotional tone is very shallow and inadequate, and although she is described as being depressed one finds inadequate description of these depressions.

Reviewing the earlier history one finds a great similarity between both attacks. Negativism, resistiveness, frequent excitement, shallow and incongruous affect, and inaccessibility were common features of her first attack. During the major portion of her first admission she remained in bed, but no description in the records indicate her being stuporous. (She was resistive, never assumed

uncomfortable positions nor could be placed in such.) She refused to get out of bed. She would draw the sheets over her head when approached. This does not look like a stuporous reaction.

It is also important to mention that the patient is definitely below average intelligence as evidenced in the history. Between her attacks she did not adjust well, shifted from one job to another.

In view of the above description and the present picture of a catatonic reaction, the writer is of the opinion that one is dealing with a schizophrenic reaction, catatonic type, in a mentally deficient individual.

Henrietta H. (Case 8), admitted on March 6, 1903, for the second time. The first attack was a year earlier when she was 21. Early history uneventful. She is single and has a brother who is also mentally ill.

This attack, like the first, began suddenly with excitement and refusal to eat and with inadequate affect. The following was her production at the time. "My name is name—the truth is truth—to sign my name; singing was singing—humming was humming—health is health—life is life—light is daylight—darkness is dark—Egyptian darkness—etc." During her six months' residence she displayed catatonic features, there was apathy, muscular rigidity, retention of food and saliva, occasional impulsive behavior, and hallucinations were present in the beginning. Diagnosis: Acute mania. Three years later she had a similar attack lasting six months; same diagnosis. Then after a period of five years of adjustment she developed ideas of reference and persecution and auditory hallucinations. She spoke irrationally and was excited. Improved after three months and was paroled. Diagnosis: Allied to M. D.

After parole she remained home for about four years when she began to talk to herself, became irritable, threatened violence and was recommitted. This last admission has continued for over 18 years. At first she was uncooperative and negativistic, mute, mischievous, destructive and assaultive and hyperactive "in a silly purposeless fashion" and laughed "in a silly way without any reason." When questioned "talked of something else . . . . "

Her behavior generally fluctuated between periods of excitement and subdued reactions. The change from one to the other was sudden and without warning.

This patient's psychosis began early in life, and continued for 32 years with several short remissions. The last attack has been continuous for over 18 years. After each of her earlier admissions she was discharged as recovered, but, as the record disclosed, she lacked insight. The parole periods lasted from one to two months, insufficient for adequate observation. The onset in all attacks was similar—characterized by sudden excitement.

In the attack during which stupor was present, the record also discloses that the patient was excited, displayed impulsiveness and sudden changes in behavior. She would retain her saliva and food. Her productions were irrelevant and she verbigerated. Ideas of reference and persecution with hallucinations were also present during these earlier admissions.

Her last and continuous residence of 18 years is characterized by uncooperative behavior. The behavior varies between attacks of prolonged excitement, and periods when she is subdued. The changes occur without apparent cause.

The periods of her excitement were usually characterized by impulsive, assaultive and destructive acts. Her productions were nonsensical and scattered, and she laughed constantly. During the subdued periods she manifested no interest in her surroundings and usually remained mute, but was oriented. The writer saw the patient during two of such phases.

In May, 1932, when seen at Kings Park State Hospital she was in one of her quiet periods. She was fairly neatly dressed although her hair was dishevelled. Her expression was mournful, but she walked in calmly, displaying no retardation. She was alert and gazed about quickly. She spoke in a whisper and never repeated anything. Questions which did not pertain to her personal difficulties she answered promptly, but on those relating to her hospitalization she remained silent. She sat stolidly, gazed vacantly and occasionally shrugged her shoulders or nodded her head. She did not change her position during the interviews, which lasted an hour each in the morning and in the afternoon. (Her subjective feelings could not be ascertained.) She appeared sad, but when asked if she were, shook her head in denial. She was not spontaneous. Her orientation was good. She permitted examination without offering any resistance. A slight amount of automatic obedience was present. When asked to protrude her tongue so that the writer could prick it with a sharp object, she stuck her tongue out and permitted him to prick it, but refused to protrude it a second time.

The excited phase was observed at Pilgrim State Hospital. The outstanding features were extreme uncooperativeness, continued shouting and talking to herself and others. Her stream was extremely disorganized, and her emotional tone was characterized

predominantly by anger, irritability. No elation was observed. She was threatening and assaultive.

In differentiating the psychosis one must consider the possibility of a chronic form of manic depressive, and catatonia with attacks of excitement and depression. It would seem that the patient is affected with the former psychosis considering her repeated attacks with remissions, sudden onsets, resistant behavior for 18 years with fluctuations in mood, and a very inactive autistic response, namely, evidence of hallucinations and delusions. However, if one accepts the former grouping it leaves much of the symptomatology unexplained. How is one going to explain the verbigeration, the extreme irrelevance in her stream, which was noted by various writers for many years, or explain the inadequate emotional tone which has been described throughout the years as " silly," " laughing without reason " or " dull, stupid, shallow " and indifferent to her surroundings? My abstract barely describes the frequent references to the above description. In considering the changes or swings in the moods of the patient one finds no adequate explanation for them. Nor can one explain the extreme impulsiveness and assaultive behavior on the basis of a chronic manic reaction. It is well known that one of the outstanding features of chronic mania is the constant playfulness and mirthful appearance of the patient. Irritability and anger are not usually features of manic-depressive psychosis. On the other hand, one cannot consider a patient depressed who barely answers questions yet counts quickly, who appears depressed yet gazes about quickly, or who appears depressed yet denies feeling so when questioned. These phenomena indicate some incongruity between content and affect, a symptom pathognomonic of schizophrenia. All this cannot be denied simply because there is no florid autistic behavior. Active autism is not a common feature in catatonia, but the rapid changes in behavior which our patient shows is a characteristic of catatonia. Then too, one frequently finds that patients after many years in the hospital learn to suppress the reasons for their behavior. One also finds an alteration of such behavior.

These phenomena given above, cannot be attributed to an affective response; whereas all the symptoms which one can attribute to manic-depressive psychosis, can also be explained by catatonia. On the bases of these findings, plus the fact that the psychosis is of

many years, duration, and of gradual but definite regression, one may conclude that the psychosis is a chronic progressive mental disease—namely, schizophrenia.

Deceased Cases.

Celia H. (Case 19), admitted October 22, 1913, at 19 years. Father a severe alcoholic and brother Vincent a patient in M. S. H.

After graduation from public school at 15 worked as file clerk in same place for three years. Four months previous to admission she complained of indigestion with "swelling of the face" and "shaking feeling in the stomach," also sensation "like cold water running in the back of the head." She worried over Vincent's illness. At his attempt to throw himself before a train, she became confused, perplexed and mute. Later she spoke of being wealthy and married. She said that Vincent was dead and her mother was a stranger.

After admission she became agitated and resistive, muttered to herself and expressed delusions of persecution. Said the doctors and nurses were in plot to keep her in prison, "this thing's all planned." Became assaultive, gave incongruous replies, was apprehensive, inaccessible. Said she was the doctor's wife and also wife of President Woodrow Wilson. When asked why she pulled another patient by the hair said, "For fun. They are changing things around up there—changing them in all sorts of shapes." (Why?) "Christmas." In addition to expressing many bizarre ideas she also expressed a wish to die. She drank enema expelled fluid and smeared her face with feces. Emotionally, she displayed a dull, apathetic expression and appeared preoccupied. About six months later she showed some improvement and shortly before her parole while giving a retrospective account falsified events with considerable fantastic and delusional material. During hospital residence she developed appendicitis and made an uneventful recovery from the operation. She was paroled June 22, 1914, displaying no insight into her mental content and illness. Diagnosis on discharge: Allied to D. P., recovered.

Following parole she made good adjustment and worked until February, 1923. At this time she developed an infectious condition in her throat. Was taken to a hospital. About a day following rupture of the abscess and while talking to her sister she suddenly complained of things getting dark, spoke of the doctor sitting beside her and reading to her. Later complained of the place being full of cocaine. Two days later she was taken home physically improved. The first week she had fits during which her legs alternatingly became rigid and then limp. Then followed a week of crying spells. Later she became restless and required hospitalization. No evidence of organic neurologic disease was present. Mentally, she was restless, screamed, confused, misidentified people and expressed religious trends. She became impulsive and required restraint.

On admission to M. S. H. had severe bronchitis and temperature of 102° F. Uncooperative, spoke spontaneously but in a disconnected and incoherent manner. She was disturbed and required restraint. The disturbance subsided

within a week but she continued to express delusional content similar to the first admission and appeared ecstatic and in a spiritual mood. Said, "I have a tumor over my heart." (What made it?) "I was weak, The Blessed Virgin was crashed down." (Have you been sick any other way?) "Yes." (How?) "My heart—tumor." (Besides that?) "My stomach." (How are you troubled with your stomach?) "It is weak, very weak. I am going to have a baby." (Who is the father?) "He is up in Heaven." (What is his name?) "Dr. M., promise me you will tell Dr. M." On April 10 she developed a lobar pneumonia and died on April 23. Mental diagnosis: Tentative psychosis with other somatic disease.

The follow-up disclosed that the second attack followed a nine year remission and was precipitated by a somatic disease. Excluding the symptoms which were referable to the infection and the hyperpyrexia, a study of the attack reveals that the remaining symptom complex, in general, is quite similar to the first attack, as to behavior, content and affective responses.

The question arises what rôle does the somatic disease play in this psychosis? Is the psychosis part of the infectious disease or was the infection only a precipitating factor of an already existing psychosis? Bleuler has pointed out that any somatic disease can release an already existing psychosis. From the facts at hand the writer is of the opinion that the infection in this case precipitated an existing mental disease. Why then offer another classification for this patient's psychosis?

Reviewing the records the writer finds that while the precipitating cause of her first psychosis was the attempted suicide of her brother, she herself was showing evidence of mental illness four months earlier when she complained of "shaking feeling in her stomach" and a peculiar sensation "like cold water running in the back of the head."

The psychosis at first was characterized by sudden onset with bewilderment and bizarre delusional content. Depression was not evident at first. Then she became resistive, restless and frequently impulsively assaultive. Her content, which was incongruous, had reference to infantile sexuality and many bizarre religious ideas. In addition to her markedly dissociated thought, other evidences of regression were also present. She drank her own urine, smeared her face with feces and ate some of it. At the time of the above behavior she was correctly oriented.

The onset of the second attack was also sudden. As in the first, she misidentified people and was impulsive. Her mood varied, but

was predominantly perplexed. Her content was dissociated, and gave expression to bizarre ideas and infantile sexuality.

While the question of the diagnosis rests between manic-depressive psychosis and schizophrenia, the writer is of the opinion that the weight is in favor of the schizophrenic reaction. The nine-year remission with good adjustment could suggest a cyclothymic reaction. However, long lasting remissions are also known to take place in catatonia. But an adjustment alone is not sufficient to include a patient in the cyclothymic group. On the other hand, the predominant incongruity between the primary mental symptoms is against this diagnosis. There is evidence of marked regressive phenomena as characterized by the drinking of urine, the eating of her feces, and the presence of marked symbolism and infantile sexuality in her thought content. The latter symptom is definitely pathognomonic of schizophrenia as pointed out later by John T. MacCurdy.[4]

The death of the patient prevented further observation. However, the data which were added by her subsequent attack, lends weight to the opinion that the psychosis is schizophrenic in nature.

Annie K. (Case 5), admitted January 7, 1907, married, 22 years old. Her symptoms developed after childbirth. She remained in the hospital about six months presenting many catatonic features. She was resistive and stream irrelevant. Later became rigid, kept her head off the pillow, soiled and wet, and retained saliva. There were sudden temper outbursts. She improved rapidly and was diagnosed Allied to D. P., recovered.

Upon several visits to the hospital it was noted that while she came for advice she appeared to take her troubles lightly, showed facial grimaces. A common-law husband reported that she was subject to queer moods and strange behavior. She shifted around a great deal. She subsequently died and no further information was to be had.

She led a more or less psychopathic existence from the time of her discharge. But the brief facts about her subsequent behavior prevent any definite analysis of her psychosis, and for this reason the writer prefers leaving her unclassified.

Mary C. (Case 7), admitted April 9, 1907, at 26 years. Single. Father and sister mental patients in Ireland. Mother died of cancer of liver.

Her early life is said to have been normal. Patient arrived from Ireland four months prior to attack. During this time two cousins died. She blamed

[4] The Psychology of Emotion, John T. MacCurdy, Harcourt, Brace and Co., N. Y., p. 463.

herself for bringing bad luck, feared death soon. Then ceased talking and became excited.

Patient remained in the hospital four months, presenting a picture of inactivity and apparent depression with some agitation. Just prior to her deportation (patient alien) she stated that she was not quite "so smart" as formerly.

The writer subsequently learned through the Irish Red Cross that patient died of pulmonary tuberculosis in 1911. No other facts could be obtained. The paucity of facts precludes any evaluation as to the outcome of the psychosis, and the writer prefers leaving her unclassified

Caroline DeS. (Case 2), admitted June 10, 1909, at 21 years, single. She was a milliner since leaving grammar school. Not a devout Catholic, but brother's engagement to a Protestant girl upset her and led to this hospitalization.

At the hospital she was restless, kept putting her fingers into her mouth, kissed her hands, beat her breast. Sometimes would kneel in prayer or sing popular songs. Productions were irrelevant and scattered. (Have you any trouble?) "No, I don't want—somebody else—give me a book—all right—I love myself—Uncle Mike too—somebody else—give me a book—all right—I love myself—Uncle Mike too—hello, I am in B. H.," etc. She continued noisy, resistive and manneristic, requiring continuous bath. After a brief period of excitement she became mute and required tube feeding. No catalepsy or rigidities were present, but she would lay in bed with stolid disinterested expression, gazed about when unobserved. She showed some improvement after six months but then after a month, lapsed again. She resumed talking suddenly after a brief period. During this time she displayed little interest, was unclean and laughed in a silly manner. She would refuse one meal and eat the next ravenously. Then she became dull, inactive, stood about the ward in a stolid manner and smiled without apparent cause, or she would behave impulsively, laugh mischievously at her pranks and drool saliva. After a year and a half she improved and was paroled, remaining evasive and inaccessible.

Eleven years later the patient was readmitted, after acting strangely while in a restaurant. She was agitated, noisy, destructive, suspicious, and productions which alternated between English and Italian were irrelevant, also alternating with mutism. She said, "They will kill my brother—all my brothers will be killed. I believe in God—in all Gods—in all religions—come, dear, let me kiss you—you—blue and white and blue—three cheers for the red, white and blue." Later she became resistive and misidentified people.

On admission patient's physical examination was negative except for a temperature of 101° F. It suddenly rose but no physical signs could be found to account for it. The condition cleared up on the second day; she then spoke coherently. About 5 p. m. the temperature again rose suddenly to 105° F., became restless and agitated. Efforts to reduce temperature failed and she died at 11 p. m.

The records reveal that the onset of the first attack was sudden, and after an initial period of excitement, the patient was hospitalized. She continued to be excited, restless, resistive and manneristic. She had self-inflicted wounds. She became mute and required tube feeding; displayed a stolid emotional reaction, but would throw furtive glances when she thought she was unobserved. Drooling of large quantities of saliva and wetting and soiling were present for a long time.

During her residence her condition varied a great deal. She would appear improved and then lapsed back to her former state without apparent reason. When she spoke, her productions were noted as scattered and irrelevant. She sometimes refused to talk but would write her answers. She would stand about in a stolid manner, inactive, smiling and laughing without apparent cause. She was impulsive and drooled saliva while she laughed mischievously at some of her pranks. Sometimes, after refusing to eat one meal she consumed the next ravenously.

She improved but remained evasive and inaccessible.

The above summary of her psychosis denotes marked incongruous behavior.

One rarely sees a depressive patient throwing furtive glances; or a manic patient refusing to answer questions verbally, but choosing to write the reply instead. Nor has the writer observed manic patients in a state of playfulness, laughing at their pranks and drooling saliva at the same time. Sudden changes in behavior with impulsiveness, the refusal to eat one meal and eating the next ravenously are not common symptoms of manic-depressive psychosis. Evasiveness and reticence upon improvement are also not usually seen in manic-depressive psychosis.

The second attack was very brief. It began with sudden excitement, following a remission of 11 years. She acted strangely, and was destructive, noisy and suspicious. Her productions were scattered. After admission she was resistive and uncooperative. She misidentified people. After a sudden rise in temperature and excitement she died.

From this attack alone one cannot offer any opinion, but viewing this attack in the light of the previous history, one is led to consider the possibility of an acute catatonic excitement. Again the remission alone does not indicate that we are dealing with an affective psychosis.

Cases Not in Hospitals.

Anna G. (Case 1), admitted July 25, 1907, 15 years, single. Father died at 45. had a paralytic stroke two years earlier. Mother nervous.

The patient, a redhead, and youngest of 11. Graduated at 14, went to work for telephone company, left and obtained other employment which she also soon quit because she felt the girls and other people commented about her. One day she complained that everybody was looking at her and ceasing to eat she lay in bed and was fearful.

At the hospital she presented a typical catatonic reaction. She was mute, dull, maintained strained positions with muscular rigidity. Eyelids could be closed and opened at will. Tendency towards cerea flexibilitas. Resisted tube feeding and retained urine and saliva, also frequently wet herself. Gave no response to pin pricks. She developed an upper respiratory infection and became emaciated. Very little change noted at end of a half year. A gain in weight was noted while patient was still apathetic. A fairly rapid improvement followed during which time she gave in retrospect an account of her illness. She stated that her difficulties began about six months before admission with ideas of reference. She believed that people in street cars stared at her and "I thought I acted strangely and they noticed me. I had strange ideas and saw dead people." She also heard people talking about her. She was paroled March, 1908, diagnosed D. P. with note, "patient in a stupor for several months, rigid, drooling saliva, not speaking and cataleptic." She was returned a month later in an overactive state and elevated mood. When paroled in July, 1908, she expressed belief she should not have been returned. Diagnosis: Allied D. P.

Nine months after parole she had some disturbance. She became restless, and unreasonable. About a year and a half after parole she began to express fear of an impending attack, she expressed certain hysterical symptoms and on April 4, 1910, she had seizures in which her whole body jerked convulsively. Different extremities became stiff. She refused to eat, became mute and was returned to another hospital. For five months she presented a catatonic picture, characterized by fixed and rigid postures, immobile expression, mutism and automatic obedience. She improved gradually and was paroled November 20, 1910, with partial insight. Diagnosed allied M. D.

Upon her return home she had several fainting spells and was returned to the hospital where she remained for about six more months.

Two years later she reported that she working but was hazy about events of second admission.

The present writer traced patient after a lapse of 20 years. She wrote that she was married and enjoyed good health and has three children. Her husband does not know of her illness. She wrote, "In fact, I never belonged there as I just had a nervous breakdown from being a telephone operator. I have tried to forget the time I was among some of the insane patients and now your letter brings everything back after all those years. It is strange that you did not investigate before this. I hope this letter will please you as I

would like to be left in peace for the rest of my life. You are a doctor and I hope you will understand my feelings in regard to this matter. Yours truly," maiden name.

To briefly summarize, the writer will quote from the abstract of the hospital where the patient had her readmission: " A psychosis in a woman aged 18, who has had one previous attack with probable recovery "—" The present attack (2d) characterized by mutism, negativism, slow movements, rigidity, some cerea and negativistic tendencies. She assumed uncomfortable positions, was passively resistive, untidy and uncleanly in habits and attire. There was no typical retardation, facial expression was extremely immobile and masklike; finally marked improvement, but still some constrained mannerisms."

In offering his differential, the writer of the above summary felt that manic-depressive psychosis had to be considered because there was no evidence of hallucinations and delusions (present in the first attack), and he further adds, " I am very strongly of the opinion that this case should be diagnosed as catatonic dementia præcox, but in view of the Ward's Island history and for the sake of consistency, a diagnosis of allied to manic depressive is suggested."

On the basis of consistency the above writer is in error, as the Ward's Island last diagnosis was allied to dementia præcox.

On the other hand, while I also believe she is a catatonic, I cannot subscribe to a change of diagnosis " for the sake of consistency."

This is only one case of the series which apparently has made a good social recovery. Indeed, Kraepelin himself reported 10 to 15 per cent recoveries among his catatonic group. Every psychiatrist has experienced cases with remissions from 10 to 15 years. Therefore recovery in dementia præcox is by no means an argument opposing such a diagnosis.

As against the old Kraepelinian concept that deterioration is an evitable outcome in D. P., Bleuler maintains that the disease process in schizophrenia may come to a standstill at any point in the course without further regression.

Socially recovered cases are frequently seen manifesting some emotional disturbance even though only to a slight degree. To what extent the patient manifests such a disturbance I am not prepared to say.

Nevertheless, from her letter one clearly sees that her unwillingness to disclose her whereabouts and her belief that she never required hospital care in spite of her second attack might be considered a lack of insight, indicating emotional inadequacy.

In view of these facts I am of the opinion that this patient belongs to the catatonic group even though she has apparently made a good social adjustment.

Celia C. (Case 17), admitted June 27, 1908, 18 years, single. Mother admitted (1913) to the same hospital (allied M. D.) and a brother seen by the writer was queer and suspicious.

Following her failure to pass two of her subjects in teacher's training course, she began to complain of difficulty in thinking, insomnia and had crying spells. Becoming restless and apprehensive, was hospitalized.

At the hospital she became more disturbed and offered resistance to any care or interference, remained mute to questioning. At first she showed anxiety, apprehension and many negativistic traits. She was inaccessible; impulsive, mischievous, resistive and bewildered. When placed in restraint she sang and verbigerated, example: "Won't you give me one second—one second until I talk—one second please—one second—please give me one second (whines)." (What is it you want?) "I want to—I want to (whines) I want to—just one second." Later she became more resistive, inaccessible, mute, displayed muscular rigidity and laughed without apparent cause. Assumed constrained and awkward positions, expression blank. She expressed guilt pertaining to sex ideas. Orientation good. Improvement followed rapidly and was paroled October, 1908. Diagnosis: Allied to infective exhaustive psychosis. She attributed her difficulties to a quarrel with her sister three weeks prior to admission.

The onset of second admission in May, 1914, followed a quarrel with a fellow-worker (female) because the latter read her mail in her absence. She talked in a rambling manner of detectives and dictographs and of being hypnotized. At the hospital the major part of her productions dealt with sexual material expressed in various bizarre ways. Her conversation was disjointed and interspersed with poetic idioms. Affective tone varied, at times it was adequate and again unrelated. Paroled after three months. Diagnosis: Manic-depressive, mixed.

The writer located the patient in California under another name. Her brief history covering 20 years indicates that she has made poor adjustment. The social agency reported that patient is estranged from her family and refuses to reveal her whereabouts. She is considered "different." The psychiatrist reports that she is loath to discuss her former difficulties. She states that her sisters influenced her mother against her, that her mind goes faster than her body and the two do not come together. He suggested manic-depressive grouping.

The symptoms in this case do not fit clearly into any one category. A careful analysis indicates many features of a schizophrenic nature and others of the affective psychosis.

In reviewing the behavior of the patient during her two attacks which precipitated hospitalization we find an absence of stupor. In the first attack she was agitated, tearful, restless and at times inaccessible to a point of mutism. There was a tendency towards impulsive acts, verbigeration and echolalia. She appeared perplexed and apathetic. She developed muscular rigidity. Her content was fragmentary and her uncompleted phrases dealt with ideas of sin and feelings of guilt.

The second attack was similar to the first both in onset and behavior. The mental content expressed bizarre ideas and marked association disturbances. The affective tone was not always adequate. Hoch describes her emotion as " a peculiar mixture of being partly puzzled and partly amused." She was never willing to discuss her problem even when recovered. When she was discharged from parole as recovered, she lacked insight and said herself she was not feeling better.

The history of the past 20 years is not very adequate. But it is a picture of a woman of fair education drifting and making a poor adjustment to social and private life. She is secretive. Her interests are peculiar and diverse, and her efficiency has greatly diminished.

From an analysis of her previous symptoms, clinical facts and subsequent data, it appears that we are dealing with a case which cannot fit into either the affective or schizophrenic group but presents features of both classifications. The recent suggestion of Kasanin [5] and formerly that of Macfie Campbell [6] leads to the more likely diagnosis of schizo-affective psychosis.

Catherine M. (Case 18), admitted November 10, 1913, 24 years, married. Father excessively alcoholic.

As a child she was considered sociable and cheerful, yet bashful and reticent about her inner life. She was also stubborn, and excessively systematic. She thought " people talked about her " and that her sisters were jealous of her; also " conceited and vain . . . . fussed with herself more than

[5] Kasanin, J., The Acute Schizo-affective Psychosis, Am. J. Psychiatry, 91: 97-126, July 1933.

[6] Campbell, C. Macfie, Two Cases Illustrating the Combination of Affective and Schizophrenic Symptoms, Am. J. Psychiatry, 6: 243-7, October, 1926.

the other girls would." Following her engagement she was greatly concerned about sex and expressed fear of intercourse. No intercourse took place until two and a half months after marriage and the defloration worried her. She remained frigid. She would not permit husband to undress in her presence nor did she in his. She feared pregnancy and kept its knowledge from her family. She kept indoors in the last few months. She developed many phobias and also became more religious. She became irritable. The birth was normal. Nine days later she talked irrationally, expressed delusion that she had two babies and assumed listening attitudes. She said the voices "gave her the power to read people's minds," laughed without cause and said the nurse poisoned her.

On admission she had a profuse vaginal discharge and some temperature. Her attitude was one of indifference, but screamed without reason, displayed sudden impulsive acts and resisted. She blocked and was scattered as following productions indicate: (What experiences have you had?) "Nothing only I had a fair chance—every day I said I thank God—forget what I said but lived to see the day—if it was all right I would thank God and if it was so—I wasn't made to make laws or give them—God was never made to make laws or give them and take them but just to the last moment—it wasn't the last moment . . . . " etc. Her behavior continued bizarre and her manner bewildered. On one occasion she appeared before the nurse's office and defecated without apparent concern. Her laughter was without provocation. While she called the physician God she was correctly oriented for place and person. At time of parole on June 1, 1914, she still expressed ideas of reference and was without insight. Diagnosis: Allied to D. P.

The patient was located but was not interviewed as her family was strongly suspicious and antagonistic. The husband gave the following history after discharge. Soon after her parole she refused to resume marital relations but was finally persuaded by her mother. She gave birth to two sons. She showed resentment towards husband's family and had difficulty with the neighbors and superintendents because of a belief they were molesting her. Her interest in religion increased, and she again denied her husband his marital rights. She became quarrelsome, accused husband of infidelity. Following a quarrel during which she scalded her husband with hot water, she was taken to Bellevue but was removed by her family three days later. She continually has the impression that peddlers as well as a former hospital physician are in league with the husband to annoy her and put her away. She thinks spies from the hospital and people in street cars, elevated and subways watch her, and men in street cars leave their pants open to annoy her. If the picture at the cinema deals with prison life she accuses the husband of taking her there to remind her of her previous experience behind bars, and at the same time accuses him of flirting with the ushers. She permits no strangers in the house and will not allow a telephone to be installed lest people listen in. When the oldest daughter recently showed mental symptoms, she would not permit a physician to be called and warned the girl not to let the father "railroad" her to an "asylum."

We have here a woman who developed a psychosis after childbirth. But the history indicates she was sensitive, conceited, vain and secretive in girlhood. She was bashful, cared little for men and had mild paranoid tendencies. The year before her marriage she showed symptoms of a disordered personality. The psychosis set in with delusions, auditory hallucinations, ideas of omnipotence and alterations in her affect. Her sudden impulsive acts, perplexity and bewilderment are features of catatonia, but the subsequent behavior given by the husband clearly points to a paranoid type of reaction. There is no evidence of manic-depressive reaction and the writer sees no other diagnosis than dementia præcox, paranoid.

Discussion.

Thirteen of a total of 18 cases were available for study. The study reveals that the greater number of these cases have suffered from psychoses which have had unfavorable outcomes. The concept of benign stupor, according to Hoch, represents a phase of manic-depressive psychoses. Obviously such classification cannot be applied to those cases which show unfavorable results.

The fundamental differentiating symptoms of manic-depressive psychosis and schizophrenia are too well known to be discussed here. However, in evaluating the type of stupor in relation to these two groups of mental disease, its development is of first consideration. Whether it is the result of a gradual restriction of the feeling tone, or is caused by a blocking of the emotions; the end process of both mechanisms is the same—stupor. Bleuler says, " Stupor is no uniform syndrome, but an outer form of manifestation of the following different states: maximal apathy, inhibitions, obstructions overpowering through fright or anxiety, and cerebral torpor of any kind. Thus we find stupor, especially in schizophrenia, where apathy, blocking, inhibitions and sometimes cerebral torpor appear together, etc."

In stupor itself, we are primarily interested in the aberration of the primary mental symptoms—the affects, the associations and the volitions. Stupor represents a quantitative expression of the disturbance of these symptoms. While it is possible to treat a mental reaction as a separate entity, it is the relationship of one to the other which is of paramount importance. While these mental reactions appear to occur as isolated phenomena, in reality they

always go on simultaneously in the patient's mind and so must be treated. In manic-depressive psychosis the disturbances of the primary mental symptoms always bear " a more or less close agreement or parallelism between the individual unit symptoms." [7] In catatonia " there are many inconsistencies in mood, thought and act." [8] Whether these symptoms appear during the time of the stupor phase or in the course of the psychosis, is not important. Their presence, however is pathognomonic.

There are stupors which are either long, short or even of variable duration. Stupors can also be deep or superficial. Deep stupors of short duration are known to occur in depressions, such as involutional melancholia. Superficial stupors of short duration are also known to occur in catatonia. We also find patients recovering from stupors occurring in organic psychoses, where the ultimate prognosis is poor—as in paresis—or brain tumor.

Stupor occurs in numerous diseases, manifesting itself only as a symptom of each disease. The actual diagnosis would depend upon other accompanying signs and symptoms plus an analysis of the causative factors.

The " benign stupor " reaction as evaluated by Hoch, was established on the presence of four cardinal symptoms; apathy, inactivity, thinking disorders, and an absorbing interest in death. In his chapter on " Special Cases " he states, " there seems little reason to doubt that when these four symptoms occur alone, we are justified in making a diagnosis of stupor." [9] If Hoch means by this, that a diagnosis of benign stupor is justified with only one of these four elements present, Kraepelin refuted this idea when he said " one must on principle beware of attributing characteristic significance to a single morbid phenomena. Not even states different so widely from each other as manic, paralytic and alcoholic excitement can be distinguished from each other with certainty on the ground of a single psychic characteristic." [10] However, even

[7] Strecker, Ed. A., and Ebaugh, Franklin G., Practical Clinical Psychiatry for Students and Practioners, 3d Ed., P. Blackiston's Son and Co., Inc. Philadelphia, 1931, p. 230.

[8] *Ibid.*, p. 257.

[9] Hoch, A., Benign Stupors, Macmillan Co., New York, 1921, p. 149.

[10] Kraepelin, Prof. Emil, Dementia Præcox, and Paraphrenia, trans. by Mary Barclay, M.A., M. B. from 8th Ger. ed., E. and S. Livingstone, Edinburgh, 1919, p. 261.

if this is a misinterpretation of Hoch's real meaning, the writer still cannot accept this group of symptoms as distinguishing benign stupor from catatonia as apathy, inactivity, thinking disorders and ideas of death are also commonly present in schizophrenia, especially catatonia.

There seems little reason to believe that the stupor described by Hoch is fundamentally different from catatonic stupors. And since stupor is generally recognized as a symptom of a disease constellation, the writer cannot agree with the classification of benign stupor as a disease entity.

To explain the suicidal attempts in some of his patients Hoch states that the "tendency to sudden, impulsive, unexplainable acts,"[11] which is common in catatonia, occurs "occasionally in benign stupors."[12] He also states that since the death idea is prominent in stupor, he considers suicide as a dramatization, or the active state, and stupor the inactive state of the same condition.

Ledrum,[13] who has made a study of suicide, showed that out of a thousand cases of attempted suicide 234, or approximately 23 per cent, were definitely psychotic. This number represents 14 different psychotic groups, of this number only 18 are schizophrenics and three manic depressives. Since suicide can occur in 14 types of psychosis it cannot be said that suicide is particularly identified with stupor.

Suicidal tendencies have varied underlying causative factors and like stupor can only be considered a symptom of mental disease and not a characteristic entity for any one group.

In the past periodicity and recoverability were considered pathognomonic for manic-depressive psychoses. Today these are not considered characteristic of the cyclothymic group alone. They occur in schizophrenia as well. The rigid theory of Kraepelin that schizophrenia is a progressively deteriorating disease is true only if we consider the case over its entire life span. Of the 13 cases reviewed here all but two had readmissions Three of this number had three admissions respectively, and one case had five admissions. All of these four cases are still in hospitals. What the outcome of the

[11] Hoch, A., Benign Stupors, Macmillan Co., New York, 1921, p. 50.

[12] *Ibid*, p. 50.

[13] Ledrum, Frederick C., A Thousand Cases of Attempted Suicide; Am. J. Psychiatry, 91 : 493-5, November, 1933.

two remaining cases might have been, had they lived, is only a matter of conjecture.

In conclusion it can be said, that the lapse of time has enabled this writer to get a broader picture of each individual case, with the result that he has been able to gather much evidence indicating that benign stupor cannot be considered a separate entity. Of course, the number of cases reviewed is too small to draw final conclusions. However, the writer has collected 132 cases similarly diagnosed (benign stupor) by different examiners following the appearance of Hoch's book This new series of cases will form the basis for another study supplementing this one. The findings of the second study will be presented in the very near future.

PRACTICAL CONSIDERATIONS RELATING TO FAMILY CARE OF MENTAL PATIENTS.

By HORATIO M. POLLOCK, PH. D.

That mentally diseased and mentally defective patients of certain types may be placed safely and advantageously in the care of private families has been amply demonstrated both in this country and abroad. Of the countries of Europe, Belgium, Holland, Germany, Sweden, Switzerland, France, Scotland and Hungary are using family care to a considerable extent. In this country, Massachusetts is the only state that has had long experience with family care. New York has made a beginning and several other states are giving the matter serious consideration.

The advisability of the introduction or of the further use of family care in any state must naturally be determined by public sentiment and other conditions existing at the time. If it is decided to introduce family care in any state, attention at the outset must be given to certain practical considerations. These include:

1. The system of family care to be adopted.
2. The selection of patients.
3. The selection of families.
4. Rates to be paid for care of patients.
5. Supervision and treatment of patients in family care.
6. Extent of use of family care.

These matters will be discussed in order.

1. *The System of Family Care to be Adopted.*—The outstanding systems at the present time are: a. The community system, of which the Gheel system is the best known example; b. The Scotch system of placing patients in isolated families; c. The German system of maintaining patients in their own homes or in the homes of strangers under the immediate oversight of a central hospital. This system is probably in most extensive use at Erlangen, near Nuremburg, Germany. Variations of these systems are in use in other countries.

As I have previously stated, if great use is to be made of family care, I believe a system somewhat like that in use in Gheel possesses many advantages over the other systems. Assuming it is decided to establish community family care in this country, the system would naturally be conducted by state hospitals or state schools. Community centers would be located in rural villages within easy distance of the state institution. The community house would serve as an intermediate station between the state institution and the families receiving patients. Patients would go from the state institution to the community center and from there to their family home. If it became necessary to return a patient placed in family care, he would be sent by the family to the community center and then either to another family or back to the institution. The community house would be the headquarters of the physician, social worker, occupational therapist and others who would supervise the patients placed in family care. The house would provide a meeting place for patients, and would be equipped to provide emergency aid to patients when necessary. The beginnings of a community group such as I have in mind may be seen at Walworth, New York, where nearly 100 mentally-defective patients have been placed in family care by the Newark State School. A community center has been established at a convenient location in the village, and the system is working to the satisfaction of everybody concerned.

The plan of placement whereby patients are put in family care in widely separated farm or village homes could be used with safety if great care in placement were exercised, but the system would not easily lend itself to large-scale placement and would not afford proper advantages to the patients in the way of recreation and social life. Adequate supervision in such a system would be extremely difficult.

The system of paying families to care for relatives in their own homes, which is being used to a considerable extent in Germany, would probably not be satisfactory in this country. Great care should be exercised in avoiding conditions that would encourage the continuation of neuroses such as those which have been found so troublesome in veterans' hospitals. When a patient becomes mentally ill his own home as a rule does not constitute a suitable environment for him. The environmental conditions giving rise to his conflicts would be continually before him and in many cases

the persons charged with his care would be closely identified with his difficulties. It might be possible in some instances to aid an indigent family when a member of the family is returned to the home on parole but the matter is one which would have to be handled with prudence.

The home of a mentally-defective patient, as a rule, does not have proper facilities for his care and training. If either of the patient's parents were defective, it would be poor policy to pay them for the care of their child.

2. *The Selection of Patients for Family Care.*—Good judgment must be exercised in selecting patients for family care. In state hospitals, until a system of family care is well established, it probably would be best to place only tractable patients beyond middle age. These, in the state hospitals, would include quiet schizophrenic, chronic manic-depressive, and other patients who have established a more or less settled routine and are not trouble-makers.

In the schools for mental defectives certain types of children may be selected for family care in addition to both men and women beyond middle age.

In instituting a system of family care it is highly important that the patients placed out would not be disturbing factors in the community. A public sentiment favorable to the system should be built up. This cannot be done if too heavy burdens are placed at the start on the families receiving patients.

In the mentally diseased group, types not suitable for family care would include the following:

(a) Patients that need constant medical or nursing attention.

(b) Patients suffering with mild or acute mental disorders who are likely to make prompt recovery.

(c) Patients that are disturbed or suicidal.

(d) Patients that are quarrelsome, contentious or have pronounced delusions of persecution.

(e) Patients with marked erotic tendencies.

(f) Patients who have convulsions.

(g) Patients that are suffering with infectious or contagious disease.

Mental defectives not suitable for family care would include all idiots; most low-grade imbeciles; most patients with marked physical defects or deformities; patients that have a tendency to run

or wander away; patients unclean in their habits or who cannot be trusted to keep themselves properly clothed.

After excluding all cases clearly not suitable for family care, a large number of suitable cases will remain, and from these, selection must be made to fit the home which is to receive the patient. If, at the time of placement, the family and the patient are both satisfied, the success of the placement is highly probable. On the other hand, if the patient enters the home of a dissatisfied family, or if the patient himself is displeased with the home to which he is assigned, the placement is likely to be a failure.

3. *The Selection of Families to Receive Patients.*—In beginning a community system of family care it is a common experience that good families hesitate to apply for patients, and families that do apply are likely to be found unsuitable. After a family-care community becomes well established and well understood, applications from suitable families are frequently received and placement becomes easier.

The requisites of a home for the placement of patients would include:

(a) A comfortable house in which a satisfactory room for one or two patients could be provided without crowding the family.

(b) A garden plot on which vegetables and flowers could be raised.

(c) Proper heating arrangements so that patients would be kept comfortable in winter.

(d) Wholesome family life.

(e) A friendly attitude toward the patient on the part of all members of the household.

Stable well-established families of the middle class would be most likely to cooperate successfully in this undertaking. After a time it might be possible for the placing institution to give a course of instruction to those desiring to become guardians of patients.

4. *Rates to be Paid for Care of Patients.*—As patients are less desirable in the home than normal boarders, the maximum rate paid for the care of patients should be somewhat higher than the customary boarding rate in the community. On the other hand, it is probable that the maximum rate for patients should not exceed the institution cost of maintenance exclusive of housing. A low rate should be paid for patients who can assist materially in house-

work or in farm or garden work, while a much higher rate should be paid for those who can do no work and need considerable personal supervision. The maximum rate for indigent patients in Massachusetts is $4.50 per week, and in New York, $4.00 per week. If the patient is not indigent, the rate may be fixed directly by his committee and the family receiving him.

In instituting a system of family care, a state should not make the maximum rate too low. A low rate would mean a low standard of care and general dissatisfaction. If a state can place patients in family care and thereby save housing costs the gain in the course of years would be enormous. To seek more would endanger the whole project.

5. *Supervision and Treatment of Patients Placed in Family Care.*—A reasonable degree of supervision should be given patients placed in family care but the matter can be easily overdone. Perfection in conduct and adjustment cannot be expected of either patients or guardians. The supervising and social workers should visit patients at irregular intervals and should be available to render assistance in case of accident or emergency. An occupational therapist should have general supervision of the activities of family-care patients other than their home duties. Projects suitable to the capacity and environment of the several patients should be provided and each patient should be given adequate instruction. To produce the best results the interest of guardians in patient's projects should be developed.

The physician in general charge of family-care patients should endeavor to safeguard the health of his charges by cooperation with guardians in arranging hygienic living conditions and providing a proper routine of activities for each patient. Whenever practicable, patients with serious illnesses should be brought back to the state institution for treatment.

6. *Extent of Use of Family Care.*—There are great possibilities for family care of mental patients in the rural villages of this country and comparatively small opportunities for such care in large cities. If the community system of family care proves as successful here as in Gheel, many large community groups could be established. The Scotch system or Massachusetts system could also be widely used. I believe, however, that the community system is better adapted to large scale placement.

In bringing this discussion of practical considerations to a close, I would call your attention to a serious conflict that is developing in our social and economic life; namely, the conflict between ideals and economic ability. We wish to maintain the highest standards in all our social and public enterprises. We build great palaces for state and federal governmental offices; we erect magnificent schools, colleges, hospitals, prisons and welfare institutions. We furnish all of these with the most elaborate and costly equipment. We construct expensive highways throughout the length and breadth of the land. We build and scrap great battleships for which we have no use. We do all these and many other similar things while our countryside is decaying and our cities are on the verge of bankruptcy. Probably 90 per cent of our citizens are either dependent or in marginal circumstances. There is serious question whether the ideal institutional system we have set up can be enlarged and maintained so as to provide for all patients needing treatment. It follows that there is imperative demand for any practical economies in the care of mental patients that can be effected without reduction of standards.

DYNAMIC CONCEPTS AND THE EPILEPTIC ATTACK.*

By SMITH ELY JELLIFFE, M. D.

Before actually entering into the unpenetrated jungle of the epileptic territory I would ask you to momentarily scan with me something apparently quite irrelevant. I invite your attention to the picture of a series of events and appearances which takes place as one would start to carry out a micro-dissection of an amœba. With poised needles in hand and our eyes glued to the oculars in our dissecting microscope we pick out a fully developed *Amœba proteus* (Leidy) and start to turn him over. We perceive his few or many irregularly elongated slowly moving pseudopodia, and on touching him with the needles it is surprising to note how tough and resistant his surface really is. He can be turned over and around much like any solid body. But to come quickly to our issue after continued pricking with the needles one observes a slow transformation. A central seeking stream starts at the base of one pseudopodium and then the whole pseudopodial system is in retreat until only a round body is apparent with a slightly billowy or mounded periphery; and even of more interest may be the observation that what before was hard and resistant and more or less gelatinous in consistency with an irregular granular appearance now becomes soft, watery and homogeneous as the amœba swiftly hurtles away on its tractor-like waves of peripherical swellings.

The hostile pin pricks have brought about a marked modification of the amœba's external form, internal appearance, and behavior.

And now leaving the microscope let me ask you to turn your attention macroscopically to another type of natural phenomena, namely, a hive of bees. I might say many grouping of species, low or high, wasps, ants, or herds of monkeys, as shown in the Johnson movie picture of Baboona.

Bees, or the social insects, serve best the particular purpose I have in mind, however, and my intention is to focus your attention

* Read at the annual meeting of The American Psychiatric Association, Section on Convulsive Disorders, Washington, D. C., May 13-17, 1935.

upon a special kind of behavior about which naturalists have written extensively. This concerns the aggressive character of the animals involved which is proportionate to the numbers of bees or of the hives. "In union there is strength" is the slogan which is of moment in my illustration. The strength that I would emphasize, however, is not that of defense but that of offense, for in almost exact proportion to the size of the hive or the number of hives the individual members thereof take on an aggressiveness which is of great significance.

Thus Stärcke in a recent study on the "Rôle of Anal and Oral Quantities in Delusions of Persecution," * emphasizes what is in my mind by quoting from the observations of Buttel-Reepen, a well-known student of the behavior of bees. Forel has made similar notes on ant colonies.

If a bee collector finds himself in a locality where the colonies are small or where but few nests are grouped he may with almost no thought of an attack collect his specimens in his net at will. But the moment he attempts to collect his specimens, in the same manner or even if with greater care, in a general locality where the colonies are larger or more numerous, even at a distance from the hive or hives, he may immediately be assailed by an angry violent horde that may even jeopardize his life.

I have now brought before you two pictures of actual behavior although clothed in such terms as the needling of amœba and the stinging of bees.

Let us put ourselves in agreement, for the moment, with certain conceptions of the structure of bioplasm that regard only the spongioplasm of the cells as living matter and as molecular in structure and the hyaloplasm as made up of many molecules, which surround and are separated from the living substance the spongioplasm. In this physico-chemical picture then the nervous system may be considered, and many have so reasoned, as one *enormous amœba*. Then as to the aggressiveness of the bees, the colonies smaller and larger, let us substitute the conception of *social sanction* and now consider the dynamic situation which surrounds the individual whose behavior adaptation we call epileptic.

I have only restated the problem of *adaptation* in a more prolix form but perhaps more picturesquely and with no sacrifice of

* Int. Ztsch. f. Psa. 21, 1, 1935.

actuality. At the same time, however, my illustrative introduction soft pedals certain standard stimuli—bee colonies if you will—that live within the individual. The most obvious of these we speak of as endocrine glands which while usually of uniform size and hence controlled, aggressivity, at times, as we know, take on an exaggerated dynamics and, to change our metaphor considerably, the tail can wag the dog instead of its more usual opposite.

In my opening glimpse at the process of needling in the microdissection of the amœba attention was called to the hard, solid exterior of the amœba's body. It was tough and resistant. I need not tax your embryological memory while reminding you, as in Longfellow's story of the Mudjekeewis—when "he turned the skin side inside"—that the nervous system is skin side turned inside.

When we search for our amœba's resistance we find it at three levels: (1) behind the chemical terms of *homeokinesis* or as Cannon prefers homeostasis, (2) in the physiologist's summary of *inhibitions*, and (3) in the psychoanalytic concept of *repression*. The most tangible is the last. Its chief function is to manage the energic onslaught of the hordes of stinging bees, inside and outside by the repressing institutions which in psychoanalytic terminology are called the super-ego and the ego.

And now one more general conception which is not so easy to state because it runs up against language precipitates which bind the free energy of insight into dynamic understanding and constitutes an insuperable barrier to free processes of thinking.

May I remind you of Hobbe's celebrated statement: "Words are but tokens. Wise men use them as counters. They are the money of fools."

Our amœba is of course only another counter for the "body as a whole" which has had a billion years of microdissection needles pricking at it and which by the trial and error methods has evolved certain fixed patterns of behavior. A group of these behavior patterns with marked survival value, as they appear on the stage today we think of as *homo sapiens*.

Man and his organs is but a bit of structuralized experience.

A fascinating dream might be sketched by one who would analyze into their single constituents all of the component activities that enter into and seem to be a constituent part of an epileptic attack.

Even when the phrasing "epileptic attack" is used clinical scrutiny at once reveals a vast gamut of occurrences ranging from apparently the simplest type of unimuscular movement to the complex activities of the "Herculean furor."

The medical sciences have been bringing this dream-wish closer and closer to fulfilment. The disturbances at the three levels of organization—physico-chemical, sensori-motor and symbolic—are slowly offering up their fraction in the combined configuration and innumerable and fairly adequate understandings of constituent items are being offered. The task of estimating the balance between cause and effect in this sorting is of paramount significance.

There is little controversy that by certain grades of disturbance of calcium ion balance in the internal milieu, severe convulsive seizures may be precipitated. Other physico-chemical changes in the bodily fluids are capable of doing the same thing—as for example in hypoglycemic states from hyperinsulism. These effector expressions may also show the gradient series from simple tetaniform jerks to complete convulsive discharge.

Not only may the convulsive discharge mechanisms be set in action by direct physico-chemical manipulations—hyperpnœa being one of the simplest for example—but definite structural interferences at the diencephalic level of integration show also their related if not identical pictures. "Diencephalic fits" is but a convenient term to cover our ignorance of those apparently simpler interferences with adaptive pattern behavior due to physico-chemical bindings.

As one ascends (ascends only in a purely relative sense) in the scale of integrative binding into the more complicated switchboard connection of the striatal region here again somatic interference with proper discharge channellings is known. The whole subject of striatal mechanisms is open for analysis.

Similarly on up to the cortex, where the final afferent-efferent liaisons are effected, and whose irregularities were among the first to be championed as the final answer to the secret of the sacred disease. No one word will adequately summarize the concept here. "Irritation" is perhaps the best short summary and, under the spell of the electrophysiological workers of Horsley and the cerebral localizers onward, has come to steal the show for the general medical audience—from the standpoints of cerebral localization

and neurosurgery and many others of cerebral archi- and myelotectonics with ample justification. But does it open the heart of the epilepsy problem?

Whereas we know fairly well from the many researches but more particularly from Dusser de Barenne's thermocoagulation work that severe motor *losses* are due to the destruction of the motor cortex and more particularly, if not exclusively, of the inner two layers in which the fourth layer of larger giant pyramidal cells are the chief accumulators. This throws only a little light on the *gains* which are manifest in a major motor discharge. A dead horse never can explain satisfactorily a run away even though it may culminate one, as many a human being finishes his earthly course in epileptic convulsive seizures.

And further, not to neglect what I really came here to say, what can one say about the symbolic level? To quote an angry hornet from a recent review of Sherrington's masterly short summary on the "The Brain and its Mechanisms":

> With few exceptions, the psychologists have sought to erect a high barrier here as though they could not bear to face the complexities and difficulties of the physiology of "the organ of mind," and were trying vainly to hide from them. On the other hand, the neurologist will not readily admit that any frontier should exist, but he shrinks from a bold advance into the tangled undergrowth of verbiage in which the modern psychologist spins so profusely his intricate webs of speculation.

Or to quote further from a related aspect of physiological snobbery:

> Hippocrates, or one of his school, wrote a treatise on epilepsy, in which he endeavored to take the symptom out of the realm of the supernatural and explain it on a physiological basis. At the close of his argument he makes this striking statement, "but whoever is acquainted with such a change in men and can render a man humid and dry, hot and cold by regimen could also cure this disease—without minding purifications, spells and all other illiberal practices of a like kind." Only within the last year or two has the truth of Hippocrates' underlying thought been demonstrated. Paralleling his concept, but paraphrasing his words, we may say that "whoever is acquainted with physiology and can render a man acidotic, dehydrated and fully oxygenated could also repress this disease, without minding purification of narcissistic personalities, ritualistic empirical diets and all other illiberal practices of a like kind.*

* Lennox & Cobb. Epilepsy. Williams & Wilkins, 1926.

How can the purely neurological mechanist, who would deal with as yet unmeasured dynamic potentials, meet on common grounds with that aspect of psychological expression which would speak of all of the body's activities, sick or well, in terms of *purpose*—not the preordained, narrower conception of Aristotle's teleology but in terms of adaptive activity remote or immediate?

This inquiry does not entail any lengthy discussion of the so-called "epileptic personality." That a certain focalization of character factors may permit such a descriptive term for a group—larger or smaller—would be quite logical. Characteristic behavior patterns are known for a host of individuals with stereotyped activities, else Sherlock Holmes never could have solved so many of his intricate riddles. We are interested in this aspect of the "personality" however because, as in one's contemplation on the concept of cortical irritability we bring the fourth layer of large pyramidal cells into prominent focus, so here the accredited presence of a prominent emergent, sufficiently distinct as to constitute a "personality" opens an avenue of comprehension for the whole situation which has been termed purpose. A precipitate out of the study of the so-called epileptic personality indicates the presence of highly dynamic sadistic and aggressive drives—using these terms strictly in a sense of emerging behavioristic patterning.

In the ancient Greek tragedy of Hercules Distracted, by Euripides [I use the Coleridge Bohn translation] an exact counterpart I believe of the Hippocratic view—Hercules, has returned from Hades, when Lycus has seized the throne and is about to kill the children of Megara and himself. Hercules kills the tyrant while apparently fully conscious of what is happening. He then develops his epileptic crisis, kills his own three children and his wife.

Rendering this into terms of actual behavior he destroys the surrogate father tyrant and the mother and children, that is the future generation. In short the death instinct, racially speaking, steps forward and destroys the future. This picture, in part or in whole, appears time and time again in the psychoanalytic investigation of the epileptic patient.

So here we are not very far from where we started. As Alice and the Red Queen said it—"We have to run hard in order to keep even with where we are"—so, Lennox and Cobb in their summary, note that we have caught up with Hippocrates or one

of his disciples. Might I suggest there were other contemporaries of Hippocrates that did not show the phobic linguistic prejudices of many modern laboratory scientists, notably the poets.

I shall not rehearse the argument of Lennox and Cobb, nor those of Muskens, of Frisch, of Spielmeyer, of Gruhle, nor the several thousand others, with all of whom we stand on the same ground of bewilderment.

The physico-chemical hypotheses of acidosis, anoxemia, water balance, from vascular or other factors, have brought us not much further than where Lennox and Cobb have left them.

Cortical, striatal, diencephalic, medullary irritation offer as yet no satisfactory solutions.

Short circuit and explosion hypotheses are meaningless, unless one knows, short circuit of what, and if "short circuit" as is known in ordinary electrical mechanics, why such a uniformity of patterning of result as to have shown a stereotyped formula for 4000 years.

To us, the release formula, but in a larger sense than that postulated by the stricter neurological analogies, comes nearer to the heart of the matter. To us Head's conception of release is nearest the mark.*

Here again one can ask release of what? Had Hughlings Jackson lived in the present era I am simple enough to believe that he would have grasped with a sure hand the conception of dissolution of functioning of symbolic patternings in the Freudian sense and helped us to arrive at a holistic interpretation of the general retreat of the epileptic attack to earlier psychobiological patternings, which had some reasonable purpose to avoid more than the slings and arrows of outrageous fortune or the stinging bees of "social assent" of my earlier illustration.

As one does not expect to make a silk purse from a sow's ear, nor to gather figs from thistles, so one does not look for patterns of behavior that have not been integrated into man's experience.

Man has arrived, ready to run, having been on nature's belt, a billion years. Should Mr. Ford find his delivered products with solid instead of bored cylinders, he would have to go back on the belt to find the "holes" and put them in. Something interfered

* Head, H. The Release of Function in the Nervous System. Croonian Lecture. Proc. Royal Society. B. Vol. 92. 1921.

with the planned pattern. In all disease something interferes with planned patternings, some permanently and hence usually more understandable—as malformations, for examples—others periodic and hence more subtle.

Jackson's "mass of clotted movements" seems to comport to no phyletic patterning save in some slight similitude to infantile attacks of respiratory difficulty induced by let us say whooping coughs, some asthmatic edemas, but even more interestingly some infantile rages.

Here may I interpolate a patient's short note entitled: "Whooping Cough and Me."

During the summer of '32 I was forced without ulterior motive to witness two cases of whooping cough which because of the fact that the victims were my daughters were vividly and in detail observed by me. In the beginning of the first case I had only a slight interest in any possible relation between the disease and my own neurotic attachment to the past, *i. e.*, a form of epileptic attack. During the illness of the second daughter which started many weeks after that of the first and elder had become a habit I was, as I have said, forced to the conclusion that the chief details of a whooping attack and one of my own vintage were much the same. Further thought and observations made me feel that although the purposes of the attacks differed the epileptic attack had burrowed into the past for a large part of the machinery it employed, at least in my case. I made inquiries as to my own case of whooping cough and learned that it had occurred at about the age of three years, the same age as my eldest daughter at the time of her attack, and furthermore that I had caught the cough while holding a younger cousin who had it while he vomited after one of his attacks. Most important of all, however, seemed the statement of my mother that although my case of whooping cough was of the usual duration, about six months, it was a rather pallid affair in which the coughs were hardly up to the standard set by the neighborhood victims. This statement led me to wonder whether the harsh statements that were made upon the discovery that I had sneaked off to visit the forbidden and stricken cousin followed by remarks (and these may never have been made) of annoyance on the part of my parents at my first few stalwart bleats had led me to bury the strength of the other coughs within myself. This is as far as I dare go in this field. I give you now such observations as I have made concerning the similarity of the two forms of attack.

(1) The whooper starts off with a long howling cough-cry. I have been informed that in my case the cry differs slightly except in intensity. There is also the fact that the whooper is for all practical purposes unconscious as am I.

(2) After the cry the whooper settles down to a series of coughs with legs and arms moving violently in an attempt I imagine to get air. The

face of the victim becomes extremely red. If there is a momentary relief saliva or phlegm drools from the lips. From what I have been told the movement of my own arms and legs, the salivary drooling and the attempt to get air bears a very close if not striking resemblance to the whooper's activities.

(3) At the conclusion of the whooping attack the victim falls back exhausted and the eyes go slightly back in the sockets. They then take a long breath and the blood leaves their faces making them extremely pale. In my own case the same procedure is followed except that the eye-balls go much further back. I then sleep but before doing so I have been informed I cough as though I had a slight cold.

The conclusions I have drawn from these observations and comparisons seem to me to be absolutely justified. They become further so if we consider as I was unable to help doing the use to which the cough is put by many victims after its physiological use has passed. My eldest daughter has continued to cough violently whenever she is awakened from sleep. If, as frequently happens she is angered by her mother's or my refusal to acquiesce to some desire of hers she immediately employs the cough as a weapon of protest. Whenever her baby sister is receiving attentions which she desires and all the ordinary weapons of attack fail to focus attention upon her she immediately goes into her cough, which is full of sound and fury, signifying, I believe, much.

Something threatens the "life instinct." It can be threatened at physico-chemical levels, at sensori-motor levels, at symbolic levels. As a few commentators have been shrewd enough to note, threat at the lowest level only does not cause an epileptic attack, nor does the purely neuromuscular release mechanisms at upper levels produce one.

Such observers, and they are in the majority, fall back on a general formula. Quoting Lennox and Cobb. "We are forced then to postulate some unknown constitutional element" "An 'abnormal' convulsive capacity." This does not even get us to where we started—any more than explaining the explosive capacity of T. N. T. on an "explosive capacity."

My desire is to say that those who are so afraid of tearing their shirts if they enter the "tangled growth of psychological verbiage" or who fail to envisage "narcissistic" personalities will never enter the territory where the greatest insight is to be gained of what is verbalized as "convulsive capacity."

Further phyletic studies of rage reactions in the lower animals I venture to suggest might get us somewhere. A still further study of the unconscious of the epileptic has gotten us somewhere

along these lines. It shows very clearly why certain individuals with the "convulsive capacity" get that way. It does not tell us all about it by a long shot, but it tells us a great deal. It can explain somewhat the sensitive vegetative system. It can, therefore, throw light on the vascular spasms. It, therefore, reveals somewhat why there is edema, why there is anoxemia and how the spasms, the apnea help to bring about a reversible reaction. And what of the sleep state and the process of inner anabolism.

But more important possibly than anything else and which seems to point to the suggestion that the Greeks knew more even than we, when they called it "The Sacred Disease," may such study not show that there are psychological restraining forces in man, call them inhibitions if you wish, resistances or repressions, conscience or super-ego, which forces him to discharge anal-erotic sadistic forces into a paralyzing non-efficiency to prevent his destruction of Eros—as did Hercules, distracted when he killed father, mother and children—*i. e.*, the "future."

All avenues of research should be open, but to those who would close their eyes to the fact that man is a mammal, that he came *from* gonads, has been patterned for a million or more years to continue the race *by* gonads and that life and sexuality are meaningless if separated—such a one will never solve the problems of the epileptic behavior reaction.

AN OBJECTIVE INTERPRETATION BY MEANS OF THE RORSCHACH TEST OF THE PSYCHOBIOLOGICAL STRUCTURE UNDERLYING SCHIZOPHRENIA, ESSENTIAL HYPERTENSION, GRAVES' SYNDROME, ETC.*

A Preliminary Report.

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In this study the formal structure and interpretation of the Rorschach [1] test cannot be discussed, and it must be taken for granted that the reader has some working knowledge of it, or must acquire it later. Briefly, it may be said that the test consists of 10 ink blots printed centrally on white sheets and symmetrically arranged, several of which are multicolored. These meaningless blots are handed to the patient and he gives his impression of what he sees. The dynamics of the test are on the basis of a visual reaction. The answers the patient gives are catalogued according to whether the answer embraces the whole or parts of the picture, and whether it takes into consideration form, movement and color. The interrelation of these various factors and their relation to the total of the answers is then integrated and the result is called the psychogram. The psychogram is expressed in symbols: G means that the answer embodies the whole of the picture; D, a detail; Dd, a minor detail; Do, any part of the diagram seen separately, usually included in a whole; Dzw refers to the background rather than the blot; Ddzw, a minor part of the background; Hd refers to dark-light shadings; B, motion; and Fb, color impressions. Dzw and Ddzw responses indicate the presence of oppositional tendencies in the subject.

In continental clinics this test has been widely used; in its application the interpretation of the formal structure of the psychogram has been stressed too much, and little attention has been paid to a correlation of the psychogramatic and clinical findings in a

* Revision of a paper read at the ninetieth annual meeting of The American Psychiatric Association, New York City, May 28–June 1, 1934.

given subject at a given time. The test was designed as an aid to clinical diagnosis in the study of mental diseases, and from this angle we are justified in agreeing with Vernon [2] that there is no other test which will tell one as much about one's subject in so short a time as does the Rorschach psychodiagnostic test.

This study deals with the application of the test in the evaluation of the psychobiological structure underlying certain clinical syndromes. In his original work Rorschach stressed the fact that in the case of schizophrenia, latent or manifest, the subjects gave very characteristic reactions to the test, indicated in the psychogram in a predominance of Dd, Do, Dzw and Ddzw components. The routine application of the test in research and practice has revealed that this psychogram is not characteristic of schizophrenia alone, but is to be found in patients suffering from or showing a predisposition to such conditions as Graves' disease, essential hypertension, gastro-intestinal neuroses, and some of the various forms of addiction: morphine, alcohol and sex. The characteristic psychogram shows a diminution in the G answers with an increase in the D and especially the Dd, Do, Dzw and Ddzw components with a shift to the B side of the B/Fb equation. Bleuler [3] emphasized that a high total of good responses exhibiting many Dd, Do and Dzw factors is indicative of ambivalency and points to psychopathy.

In Table I are presented the average totals of examinations of series of patients suffering from schizophrenia, essential hypertension, gastro-intestinal neuroses, including duodenal ulcer, various types of addiction, and patients having suffered from a Graves' syndrome.

Vernon [2] showed in his comprehensive study that in his 90 subjects, in spite of a high total of answers given, average 33.1, the sigma Dd and Dzw responses were very low, namely, 1.8 and .7 respectively, for his group; Ddzw responses are not recorded. When you compare this with the above findings, you will see a marked difference.

One must be very careful not to assume that a group of so-called socially adjusted individuals of superior intelligence is in its basic psychobiological makeup normal and utilize the findings of that group for the norm of the Rorschach. Table II shows the results of tests on subjects who are working every day and are passing as so-called "normals," but later clinical investigation revealed that many of these people were psychopathic.

TABLE I.

THE AVERAGE TOTALS OF THE PSYCHOGRAMATIC FACTORS OF 63 PATIENTS EXAMINED AT RANDOM WITH THE RORSCHACH TEST.

	(a) Graves' disease.	(b) Essen. hyper.	(c) Intes. neuro.	(d) Schizo.	(e) Alcohol+ morph.	(f) Schizo.+ hyperthyr.
Total cases	8	7	8	11	12	17
Av. Age	37	55	40	36	30	44
Ans.	43	31	36	35	49	27
G	5.8	4.9	4.3	4.6	7.1	4.1
D	18.8	11	13.5	14	18	10.5
Dd	13.5	14.4	16.8	14	18	8.9
Do	.87	.28	.75	.63	.75	1
Dzw	1	.14	.25	.54	1.08	.9
Ddzw	3	.57	1	1.09	1.33	1.8
B	2.75	1.4	1.6	3	4.66	1.1
Fb	3	1.1	2.1	1.1	3.45	3.0

(a) Of the eight post-operative cases of Graves' disease, two had suffered from an acute schizophrenic episode; remainder disclosed residual emotional imbalance.
(b) Of seven essential hypertension cases, one case had a previous hyperthyroidism.
(c) Of the eight gastro-intestinal dysfunctions, five were duodenal ulcers, two cases of mucous colitis and one a duodenal ulcer with schizophrenia.
(d) All of the 11 schizophrenics have made a partial adjustment and are under treatment.
(e) Of the 12 addiction cases, five were alcoholics; three alcoholics with hypersexuality; one morphinist; two alcoholic criminals and one ejaculatio præcox.
(f) All of these 17 schizophrenics had previous hyperthyroidism and are committed.

TABLE II.

	(a) Normal.	(b) Latent schizo.	(c) Tension neuro.	(d) Masochist.
Total cases	12	1	1	1
Av. Age	36	28	20	35
Ans.	52	158	44	37
G.	6	13	2	6
D	24	66	15	20
Dd	18	64	21	9
Do	.58	0	2	0
Dzw	1.16	9	2	0
Ddzw	1	6	2	1
B	6.25	14	3	2
Fb	3.33	7	3	5½

(a) So-called normals: Two suffered from depressions, have been patients. Remainder never sought medical attention. All poorly adjusted, especially b, c and d of which:
(b) A latent schizophrenic whose mother is committed to a state hospital.
(c) Is a marked tension neurotic with ? latent schizophrenia.
(d) A social problem with marital difficulties; an extreme masochist.
Of the 12 "normals" only two sought psychiatric help. Remainder however presented marked evidence of psychopathology and practical maladjustment.

The psychobiological structure of an individual is not revealed in his apparent social adjustment. Pathological tendencies may be present in an individual which, however, are sufficiently sublimated to escape detection. Furthermore, it becomes a question whether or not a given symptom or adjustment pattern is sociomedically acceptable. In this connection Bleuler and Wertham [4] made a very interesting study by subjecting a patient to the Rorschach in his normal state and while he was under the influence of mescaline. They showed that the psychogram in its formal structure was far less pathological when the patient was under the

TABLE III.

Ans.	23	F+	14	F+	93+
G	13	F−	1	V	38+
Gzw	1	B	6	O	30−
D	8	Fbf	1	T	38+
		Fb	1		
V	9				
O	7	B/Fb	6/2½		

(*a*)

Ans.	63	F+	49	F+	96
		F−	2	V	14+
G	9	B+	5	O	17
Gzw	1	Fbf	2	T	31+
D	30	Fb	3		
Dd	16	Hd	1		
Dzw	3	F(Fb)	1		
Ddzw	4				
		B/Fb	5/6½		
V	9				
O	11				

(*b*)

The above two psychograms are those of a young university graduate: (a) taken while under the influence of alcohol; (b) taken in the sober state. This subject is a very popular, successful professional man. Psychogram (a) agrees more with his known personality and adjustment in the light of our present concept of "normal." Yet this young man at barely 30 years of age suffers already from a mildy advanced hypertension. The difference in the type of psychograms is quite apparent.

influence of mescaline than in his normal state, and that the former findings were more in keeping with his known personality and practical adjustment. By mere coincidence I tested a patient under tne influence of alcohol and then in the sober state, and as Table III reveals, these same findings were again demonstrated. These significant findings need interpretation, and we shall come to that later in the evaluation of the psychogram in relation to the various syndromes mentioned.

The psychograms in Table I represent the findings of unselected cases of patients suffering from the various syndromes previously mentioned; in only two duodenal ulcers was the clinical diagnosis disputable and only in these two cases was there an exception to

this structural type of psychogram. This, however, would not be significant, were it not for the fact that by means of other forms of investigative approaches attention had been called to the close correlation and overlapping of various clinical findings in these syndromes. Thus we find that a great number of patients who have suffered from Graves' disease show frequent relapses (statistics varying from 5 to 20 per cent), or later develop schizophrenia or schizophrenic reactions. Analogous to the puerperal psychoses, such mental states have been diagnosed as psychoses with somatic disease: exophthalmic goitre. As Strecker and Ebaugh [5] have pointed out in the case of the puerperal psychoses, such diagnoses are misnomers. The psychoses complicating Graves' disease, analogous to the puerperal psychoses, likewise represent nothing else than functional reactions, chiefly schizophrenic in type. Competent psychiatric study of such mental states reveals that they are actually cases of schizophrenia. A survey of two of the state hospitals in Washington reveals that an average of 2.35 per cent of the female schizophrenics have had an operation for an adenomatous or an exophthalmic goitre. Many of these cases—patients with hyperthyroidism who develop schizophrenic reactions—do not deteriorate into a chronic state, therefore the incidence of schizophrenic reactions in Graves' disease is higher than the above percentages would indicate. Nagy [6] and Feldmann [7] point out the prevalence of psychic disturbances associated with Graves' disease. Bianchi,[8] however, was the first one to postulate a pathogenetic relation between Graves' disease and schizophrenia.

The correlation between essential hypertension and exophthalmic goitre is a clinically established fact. Plummer,[9] at the Mayo Clinic, pointed out that 47 per cent of the exophthalmic, and 35 per cent of the adenomatous goitres showed a history of essential hypertension. Rahm and Parade [10] find hypertension in one-third of all cases of Graves' disease. Barath [11] finds hypertension in a high percentage of such cases and points out that both syndromes must have a sympatheticogenic etiology, since thyroxin does not elevate the blood pressure in controls. Askey and Toland [12] found 30.6 per cent of toxic goitres * showed an essential hypertension, of which 90

* Hoover [37] thinks that hyperplasia offers no evidence for the thyrogenesis of Graves' disease. He sees no justification for differentiation of the so-called toxic adenomatous goitre from Graves' disease; both run a self-limiting course

per cent were women.* An analysis of 100 of their cases showed that 33 per cent revealed an essential hypertension after operation, and in 20 per cent there was even an aggravation of the condition. In 1919, Riesman [13] mentioned a variety of "non-goitrous thyrotoxic hypertension" occurring in women about the menopause. These patients were emotional and had palpitation, sweating, tremor, tachycardia and both systolic and diastolic hypertension. Manneberg [14] stressed the frequency of tachycardia in hypertension uncomplicated by heart failure. He cited its preponderance in women and "its indifference to digitalis, the concomitant sweating and glycosuria, a rise in the basal metabolic rate and the not infrequent presence of a goitre as good evidence for its thyrotoxic origin." Kerpolla [15] found thyroid enlargement in one-fourth of his female hypertensive patients, and of these about one-half presented symptoms of exophthalmic goitre or thyrotoxicosis.

There are many other clinical features pointing to a common psychobiological structure in these various entities. The finding of a certain type of blood sugar curve with a high, wide peak in neuropsychiatric cases has been repeatedly demonstrated. Richardson [16] quotes Sauger and Hun as finding similar blood sugar curves

with exacerbation and remissions. Warthin [38] postulates an identical underlying constitutional abnormality for both syndromes. Simpson [39] on the basis of 665 pathological specimens corroborates this hypothesis. This constitutional abnormality manifests itself by the presence of hyperplastic lymphoid tissue in the thyroid gland of individuals suffering from either Graves' disease or so-called "toxic adenoma"; these individuals belong to "the thymicolympathic diathesis and are consequently pre-destined from birth to hyperthyroidism" if the necessary stimuli or precipitating factors are supplied. Rice,[40] in a survey of routine autopsy material, finds nodules (adenoma) in normal thyroids in 56.95 per cent of the cases; 57.14 per cent of toxic goitre; 42.85 per cent of the toxic goitres show an absence of nodules; 22 per cent of Graves' disease contain nodules. He finds that exophthalmus occurs as frequently in glands with as without nodules. These findings, based on sufficiently large material and reported by very reliable workers, would indicate that the absence or presence of nodules in a given thyroid gland probably stands in no casual relation to the hyperthyroidism; that both clinical types of toxic goitre are pathogenetically similar.

* Simpson [41] finds that hyperthyroidism is less common in men than women; but when present, much graver in type and responding poorly to treatment. The same phenomenon appears in hypertension as pointed out by Blackford.[36] This reason we must seek in our present social order, granting men a greater range for emotional outlets.

after the ingestion of glucose by patients suffering from exophthalmic goitre. John [17] quotes the incidence of diabetes in hyperthyroidism as 2.1 per cent, whereas the incidence of diabetes at large is 1 per cent—an increase of 100 per cent. Of 100 dextrose tolerance tests in 82 cases of hyperthyroidism, 66 per cent of the curves revealed an impaired tolerance. Joslin and Lahey [18] reported the occurrence of glycosuria in 28.6 per cent of 228 cases of primary hyperthyroidism.

Mohler [19] reports that 36 of 46 patients with hypertension, picked up during a health survey, showed a glycosuria. Wishnofsky and Byron [20] studied 10 patients with essential hypertension and found that in six the fasting blood sugar and in all 10 the blood sugar tolerance curves were higher than normal in the presence of a normal respiratory quotient. Musser [21] says the correlation of hyperglycemia and hypertension is so constant that it would seem as if there might be some relationship to the lowered sugar tolerance other than that of the development of arteriosclerosis in a fat individual who has hypertension. He studied a group of 30 obese hypertensive women and found that they exhibited a marked lowering of sugar tolerance. A second group of fat individuals without hypertension did not have any hyperglycemia. Kramer [22] studied 570 cases of diabetes and found that 39 per cent had a blood pressure of 150 mm. or above. He states that it is unlikely that the diabetes through its hyperglycemia produces hypertension.

In addition to the observations with the Rorschach test and the above reports from the literature, the rôle of emotional or psychic and neuro-sympathetic factors in these various syndrome states points to a common psychobiologic etiology. The relation of such factors to peptic ulcer and exophthalmic goitre has been stressed by Cushing and Crile. Bram [23] in a survey of over 3000 cases of hyperthyroidism found a definite psychic precipitating factor in 85 per cent of his cases. Mittleman,[24] Stone [25] and Jelliffe [26] have reported similar findings. Lewis [27] aptly states that the symptoms of hyperthyroidism are exact duplicates of fear and anxiety states.

How do these psychic or emotional factors find expression in the Rorschach test, how may the test results be utilized as the common denominator in correlating the clinical observations? Psychiatrists experienced in the use and interpretation of the

Rorschach test have long found that a diminution of the sigma G and an increase of the sigma Dd, Do, Dzw and Ddzw, with sigma B factors, are synonymous with a sensitive, seclusive, submissive type of character. On the basis of their sensitive, submissive character these subjects have difficulty in adjusting to life and the development of oppositional tendencies represents an attempt at compensation, in schizophrenia so well known as negativism. Slowly these patients withdraw more and more from life, with resultant feelings of guilt, of anxiety and of fear. This dynamic mechanism has been sufficiently demonstrated from the psychoanalytic standpoint.

Now we must for a moment return to the work of Bleuler and Wertham [4] and my observations of the alcoholic patient. The many inhibitions on the basis of a sensitive disposition present in such patients handicap their adjustment so that they manifest a passive, over-conscientious behavior, reflected in the Rorschach by an increase in Dd and Do and secondary Dzw and Ddzw components. The resultant compensatory anxiety and tension states may manifest themselves through processes of intellectualizations in the form of obsessions and compulsions, or through muscular tension; or through various neuro-vegetative reactions: palpitation, gastro-intestinal spastic reactions, hypertension, hyperchlorhydria and hyperglycemia. Furthermore, the patient may resolve his tension and anxiety through emotional reactions: hatreds, jealousies and sadism—all of them subtle and sufficiently veiled to escape detection on superficial inspection. Therefore, such cases are not considered as psychiatric problems, but analytic exploration will soon disclose evidence of psychopathology. Exhilarating drugs—morphine, alcohol or mescaline—will release the inhibitions and the patient liberates his suppressed aggressions with an accompanying freer psycho-dynamic integration, producing a psychogram free of pedantic and anxiety exhibiting components. That is why so many of these patients tend towards addiction and why addicts reflect a similar psychogram. Furthermore, it is well known that clinical cases of hypertension, Graves' disease, gastro-intestinal dysfunction will reveal a schizoid temperament or an accompanying obsessional or compulsive psychoneurosis in varying degree. No neuro-vegetative syndrome ever presents a pure culture picture.

How then do these psychopathologic qualities in the sense of a sensitive, submissive disposition with compensatory anxiety, tension and fear states demonstrable in the psychogram find expression in these visceral symptoms? Cannon [28] and many others have demonstrated that fear and anxiety states give rise to vegetative-endocrine reactions. Chronic anxiety and fear states then will finally upset the physiology of the thyroid gland or keep the blood pressure at a high level for a long period on the basis of an excessive adrenalin secretion, or, in the case of gastric ulcer, a prolonged hyperacidity. As Crile [29] points out in making his analogy between exophthalmic goitre and peptic ulcer, emotions decrease peristalsis, increase adrenalin, adrenalin inhibits oxidation in the intestinal tract, which results in a decreased alkalinization of the acid secretion, with a resultant persistent hyperacidity. He quotes Deaver as saying: "Hyperacidity prepares the way for the action of whatever toxic or infectious factors may be at work in the pathogenesis of chronic peptic ulcer." In schizophrenia, the delusions, hallucinations and negativism are attempts at compensation for the maladjustment arising out of the primary sensitivity. Thus, in all these various syndromes there is a succession of events arising out of socio-environmental maladjustment and culminating in symptoms which heretofore we have been attempting to treat with no lasting results. In many instances it has been possible to take out a link in the chain of development.

In the case of schizophrenia, our form of treatment has been an attempt in breaking the vicious cycle by removing the patients from the environmental friction through commitment. In the case of peptic ulcer and exophthalmic goitre, the vicious cycle has been broken by taking out a link in the chain through dietary measures or operation; but we have not attacked the psychobiological structure underlying this cycle, and that is why we must agree with Marine,[30] when he speaks of surgery in the case of exophthalmic goitre as not a rational form of treatment. Until recently we had no way of attacking essential hypertension. DeCourcy [31] apparently is attacking the symptom-complex now by doing a bilateral subtotal suprarenalectomy, and claims good results. In cases where no secondary anatomico-physiological changes have taken place, improvement undoubtedly may be expected, but the procedure is a rather drastic one, and might it not be possible perhaps to attain

the same results by more conservative methods? If these conservative methods fail because of secondary changes, it is very questionable whether the suprarenalectomy will help.

The dynamics of the development of the psychobiological predisposition and later clinical syndromes is probably as follows: the inherited tendencies or biological drives (Triebe) and intelligence are acted upon by environmental stimuli, which include methods of training, parent-child relations, opportunities for self-expression, physical health, climatic conditions and other factors. The drives are conditioned into habit patterns. If these are inadequate for competitive adjustment resulting in anxiety and tension, such a pathologically pre-dispositioned individual need not in each instance show clinical symptoms in the form of behavior problems, schizophrenia and sympathetico-visceral neuroses but may always remain a character neurotic. The necessary precipitating factors must next obtain. Why it is that one individual who shows such a psychobiological predisposition will react to a precipitating factor by developing a schizophrenia, the next hypertension and a third some other symptom-complex, we are in no position to answer as yet.* That heredity is not the chief determining factor was proven by Bleuler's [32] extensive study with schizophrenia. On the other hand, Ayman's [33] researches on hypertensions again suggest a hereditary element. However, on the basis of these findings and a review of the literature, we are justified in advancing the hypothesis that these various syndromes represent psychoneuroses and in selected cases perhaps may respond more favorably to psychotherapy than to other methods of treatment hitherto tried unsuccessfully; in many instances these conditions might be preventable from a mental hygiene standpoint.

* On the basis of analyses of patients suffering from gastro-intestinal dysfunctions, Alexander and his school claim that the etiological factor of a given symptom complex is represented by a specific psychological content. He finds predominantly a marked oral component in his cases of duodenal ulcers, an anal guilt complex with a desire to make restitution in his cases of mucous colitis. The gastro-intestinal dysfunctions, involving the upper and lower tract, show more or less the same type of psychogram. Clinically pylorospasm and mucous colitis usually appear interchangeably in the same patient. It seems therefore rather doubtful whether trying to correlate specific psychologic content with specific clinical symptoms will throw much light on the subject.

With this in view, it is obvious that the psychiatrist in the future must play a very important rôle in internal and preventive medicine There must be a closer cooperation between the internist and the psychiatrist in the treatment of adults suffering from such conditions as essential hypertension, exophthalmic goitre and the various forms of gastro-intestinal neuroses. Hyman and Kessel [34] have already pointed out what may be attained from a clinical angle, and once we are alert to the question, the earlier will we get the cases and subject them to psychotherapy and psychoanalytic treatment, and the better will be the results. Such psychotherapy, in addition to the accepted principles of procedure in emotional re-education and habit training, often requires drastic interference in the patient's whole social and economic adjustment. It frequently calls for a change in vocation, separation of families, and other forms of rehabilitation. Whether or not we are willing to take that step and allow common sense and clinical psychiatry to vie with established medical procedure, social taboos and religious convictions is a question that goes beyond the scope of the paper.

Summary and Conclusions.

The routine application of the Rorschach psychodiagnostic test in research and practice and the correlation of the test results with the clinical findings indicated that the psychobiological structure underlying schizophrenia, Graves' disease, gastro-intestinal dysfunction, especially pylorospasm and mucous colitis, essential hypertension and the various forms of addictions is identical. The clinical observations pointing to an overlapping of symptoms with a tendency to displacement of one symptom and symptom-complex by another is further borne out by reports in the literature. The psychopathologic aspects of this psychobiological structure is in the form of anxiety neurotic mechanisms. The psychodynamics of the chronic anxiety, tension and fear states are on the basis of faulty habit integration. The faulty habits handicap the individual in adjustment, giving rise to a sensitive, self-conscious disposition, which progressively produces the chronic anxiety and fear states. Such anxiety and fear states then may manifest themselves on the vegetative-endocrine level, as the work of Cannon has shown. Chronic anxiety and fear states on the basis of a sensitive, self-

conscious disposition are then common to all the variously enumerated symptom-complexes. Sensitivity and self-consciousness (pedantry) are reflected in the Rorschach psychogram by a diminution of the sigma G with an increase in Dd, Do, Dzw and Ddzw components. Therefore, it is logical that in all these syndromes one may expect a similar psychogram and the clinical picture and ultimate prognosis are in direct proportion to the degree of pathology reflected by these psychogramatic factors.

This study throws some light on the observations of many clinicians (Perry,[35] Blackford,[36]) that in all these neuro-vegetative syndromes one finds psychic components. On the basis of this fact the treatment must not be directed towards the symptom alone, but must also attack its cause—the habit disorganization with its resultant anxiety and fear.

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THE FIRST YEAR OF THE NEW STANDARD NOMENCLATURE OF DISEASES IN MASSACHUSETTS MENTAL HOSPITALS.[1]

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1. Historical sketch of statistics on mental diseases as developed by The American Psychiatric Association.
2. Methods used in the adoption of the new psychiatric classification.
3. The detailed psychiatric classification applied to admissions (7222 cases), discharges (4837 cases), deaths (2001 cases), 1934, and the resident population (23,196 cases), and patients out of hospitals (2423 cases) on September 30, 1934. Separate consideration of first and readmissions in all groups.
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1. HISTORICAL SKETCH OF STATISTICS ON MENTAL DISEASES AS DEVELOPED BY THE AMERICAN PSYCHIATRIC ASSOCIATION.

At the 69th annual meeting of The American Psychiatric Association held at Niagara Falls in 1913, Dr. James V. May read a paper entitled, " Statistical Studies of the Insane." As a result of the suggestions contained in this communication a permanent committee on statistics was appointed with membership as follows: Dr. Thomas W. Salmon, New York, Chairman; Dr. Owen Copp, Pennsylvania; Dr. E. Stanley Abbot, Massachusetts; Dr. James V.

[1] Read in part, at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

From the Division of Statistics and Research, Massachusetts State Department of Mental Diseases. Miss Harriet Dolan, Chief Research Worker, D. M. D., collaborated in the preparation of the statistical material for this paper.

May, New York; and Dr. Henry A. Cotton, New Jersey. For several years this committee studied the matter of defining and grouping mental diseases and at the annual meeting in New York in 1917 presented a complete classification which was officially adopted. At that time a plan for the collection of statistics was worked out by the committee and the Department of Statistics of the National Committee for Mental Hygiene. Since 1917 statistics have been collected under the auspices of the National Committee through the use of their special statistical cards. From these cards various tables were made up by the institutions throughout the country and forwarded to the National Committee for compilation.

In 1928 work on a new "Standard Classified Nomenclature of Diseases"[2] was begun by a New York group. The American Psychiatric Association, together with 21 other national organizations, cooperated in building up this Nomenclature. At the initial conferences The American Psychiatric Association was represented by a cooperating committee composed of Dr. James V. May, Dr. William T. Shanahan and Dr. Harry C. Storrs. Later a great deal of work was done by the statistical committee under the chairmanships of Dr. E. Stanley Abbot in 1933 and Dr. James V. May in 1934. As can be easily imagined, the elaboration of a psychiatric classification both typographical and etiological was fraught with difficulties. It made its appearance in the first edition of the nomenclature published in January, 1933. Later the committee on statistics effected several refinements and prepared a final revision. The writer worked with this committee in the latter part of 1933 and in 1934, and prepared the condensed classification now in use. Both the detailed classification and the condensed version were accepted by the Council early in 1934, and officially recognized by The American Psychiatric Association at the annual meeting held in New York in May, 1934.[3]

[2] Compiled by the National Conference on Nomenclature of Disease. Edited by H. B. Logie, M. D. Published by the Commonwealth Fund, New York, 1933.

[3] In 1933 the American Association on Mental Deficiency made additions to their approved statistics and developed a new clinical classification for the section of the New Standard Classified Nomenclature of Disease referring to Mental Deficiency. (Committee under chairmanship of Dr. Howard W. Potter.)

Following the adoption of the new Nomenclature by the Association, Dr. Clarence O. Cheney was appointed by the committee to rewrite the descriptive material applying to the various psychoses. At that time there was some discussion as to whether the Association should undertake the publication of the new "Statistical Manual for the Use of Hospitals for Mental Diseases." Dr. C. M. Hincks, Director of the National Committee for Mental Hygiene, came forward with the proposal that they should continue to publish this as in the past. Consequently, the National Committee published the sixth edition of the Manual which became available during the summer of 1934.[4]

In common with other mental hospitals from Maine to California, the institutions of Massachusetts were faced with the task of reclassifying their patients in accordance with the new groupings in both mental disorders and mental deficiency. It was anticipated that this would not be too difficult if the work was started on a specific date and was made to apply to current admissions, discharges and deaths. However, in Massachusetts we had the additional task of reclassifying the entire resident population and the population out of institutions. The compilation of statistical data on these two groups was one of the primary considerations of the centralized statistical system installed by the writer in 1927 in all mental hospitals and schools under the department.[5]

The task of making the changes was not a small one. Dr. James V. May, commissioner of the department at the time, felt that the new classification should be placed in use immediately

[4] At the same time the National Committee published the second edition of the "Statistical Manual for the Use of Institutions for Mental Defectives" as approved by the American Association on Mental Deficiency. (Committee under chairmanship of Dr. Horatio M. Pollock.)

[5] Through the cooperation of their individual departments, the psychiatric reclassification was effected in five other mental hospitals, namely, the Bridgewater State Hospital (Criminal Insane); Tewksbury State Infirmary (Mental Wards); McLean Hospital; and the two Veterans' Administration Facility Hospitals No. 95, Northampton, and No. 107, Bedford. These institutions are included in the statistical system of the Department of Mental Diseases and report all admissions, discharges, deaths, etc., on the standard coded statistical cards. The annual statistics prepared by the Department give a picture of mental disease as a state-wide problem and are not confined to state mental hospitals only.

and that admissions, discharges and deaths for the current year should be reclassified back to the beginning of our statistical year, September 30, 1933. This made it possible to present our statistics for the current year 1934 on the basis of the new classification. Plans were then made to reclassify the entire population resident in state hospitals and schools on October 1, 1933, and all admissions, discharges, deaths and transfers occurring between that date and September 30, 1934. As the writer had been doing considerable work with the Committee on Statistics of The American Psychiatric Association and was a member of the Statistical Committee of the American Association on Mental Deficiency he was familiar with the changes in both classifications.

2. Methods Used in Adoption of the New Psychiatric Classification.

In order to clarify the methods used in adopting the new classification, a brief outline of the Massachusetts method of handling statistics is inserted at this point. The centralized system, developed by the writer in 1927, wholly removed statistics from the institutions and made their preparation a departmental affair. It is the duty of the clerk at each institution to spend about 10 minutes in preparing a coded card on each admission, discharge and death. The card is then mailed to the central office. This act terminates the institution's responsibility as far as its statistics are concerned. All institutional annual reports, the department annual report, the cards for the Census Bureau and the cards for the U. S. Public Health Service are prepared within the department by the Division of Statistics. The original coded cards sent to the department make up a large alphabetical file of admissions, discharges, deaths and the resident population in all institutions. A punched copy of each original card is also made for use in the mechanical sorting machine.

The superintendents and the medical staffs of the various hospitals and schools showed a fine spirit of cooperation, and concentrated on the task of reclassification for a period of about four months. Special conferences and staff meetings were held on doubtful cases and the entire matter cleared up in a remarkably short time. In addition a special conference was held for the statistical clerks of the various institutions in order to acquaint them with the new code changes.

As the changes were made and the new diagnoses entered on lists covering the total population in each hospital, these lists were returned to the central department for the work of recoding and repunching the cards. Meanwhile, additional temporary clerical help had been requested and granted in the supplementary budget of the department. In order to facilitate certain other changes which were put into effect at the time of the recoding, a new statistical card was printed and new items added. When the lists recording the *new* diagnoses were received, the department alphabetical file card for each case was recoded. When this had been completed, a duplicate punched copy was made for the sorting machine file and the corrected original replaced in the alphabetical file. The tremendous task of recording 36,711 cards and repunching the same number was completed early in November. This placed the files on the new basis, however, and gave us new cards for (1) every case on the books of mental hospitals or state schools as of September 30, 1933, and (2) every current case for the year 1934.[6]

3. The Detailed Psychiatric Classification Applied to Admissions (7222 cases), Discharges (4837 cases), Deaths (2001 cases), Resident Population (23,196 cases), and Patients Out, Etc. (2423 cases).

Table 1 outlines the detail of the new psychiatric classification of mental disorders and presents the number of admissions, discharges, deaths, resident population and population out of hospitals on visit, parole, family care, etc., falling in each diagnostic group. A new departure is made here in that each of the five classes of patients mentioned above is divided into first and readmissions.

[6] While these changes were being carried out, the routine work of taking care of the current admissions, discharges, deaths and transfers had to be carried on. Each day about 90 cards come in from the various institutions. These have to be recorded, checked, copied (four copies) and punched. The four punched copies are then distributed; (1) to the institution; (2) to the department machine file; (3) to the Bureau of the Census, Department of Commerce; and (4) to the Surgeon-General's Office, Bureau of the Public Health Service. The distribution of the last two named cards removed from each state hospital and state school (1) all table making and clerical work in connection with the annual reporting to the Bureau of the Census and (2) the clerical work of reporting monthly to the Bureau of Public Health Service.

TABLE 1.

ADMISSIONS, DISCHARGES AND DEATHS IN MASSACHUSETTS MENTAL HOSPITALS, 1934, AND RESIDENT POPULATION AND CASES OUT OF INSTITUTION ON SEPTEMBER 30, 1934, IN ACCORDANCE WITH THE DETAILED GROUPINGS OF MENTAL DISORDERS IN THE STANDARD NOMENCLATURE OF DISEASES, BY FIRST AND READMISSIONS.

Mental Disorders	All Admissions		All Discharges		All Deaths		Resident Population		Cases Out of Institutions	
	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.
I. *Psychoses Due to or Associated with Infection*	373	54	153	39	149	35	581	333	104	34
Syphilis of the Central Nervous System:										
Meningo-encephalitic type (general paresis)	272	41	98	24	119	30	428	255	75	24
Meningo-vascular type (cerebral syphilis)	30	3	12	9	15	3	57	36	7	4
With intracranial gumma	1	..	..	..	1	..	3	2	..	..
Other types	14	..	5	1	5	..	19	3	4	..
With epidemic encephalitis	16	6	15	4	3	..	61	31	10	4
With tuberculous meningitis	1	..	2	..	..	..	2	..	..	..
With meningitis (unspecified)	..	..	..	..	..	..	..	..	..	..
With acute chorea (Sydenham's)	1	..	1	..	..	..	1	..	..	..
With other infectious disease	30	2	17	..	5	2	7	4	4	1
Post-infectious psychoses	8	2	3	1	1	..	3	2	4	1
II. *Psychoses Due to Intoxication*	508	129	384	110	70	26	788	563	135	54
Due to Alcohol:										
Pathological intoxication	34	12	3	8	2	..	34	8	19	9
Delirium tremens	97	14	77	11	6	1	20	4	11	..
Korsakow's psychosis	36	2	11	..	20	3	84	32	9	5
Acute hallucinosis	153	34	133	32	8	2	107	29	42	10
Other types	154	55	120	47	33	20	533	480	48	28
Due to Drugs or Other Exogenous Poisons:										
Due to metals	2	..	2	..	..	..	3	..	..	..
Due to gases	4	..	3	..	..	..	1	1	1	..
Due to opium and derivatives	18	1	1	2	..	..	1	3	..	..
Due to other drugs	10	11	34	10	1	..	5	6	5	2
III. *Psychoses Due to Trauma*	41	5	30	5	8	..	46	19	7	1
Traumatic delirium	20	3	14	3	3	..	10	1	3	..
Post-traumatic personality disorders	11	1	8	..	..	..	12	5	2	..
Post-traumatic mental deterioration	4	..	2	1	2	..	21	12	2	1
Other types	6	1	6	1	3	..	3	1	..	..
IV. *Psychoses Due to Disturbance of Circulation*	893	62	189	28	613	38	954	166	132	24
With cerebral arteriosclerosis	841	60	169	24	583	38	929	162	123	22
With cerebral embolism	1	..	1	..	3	..	4	1	..	..
With cardio-renal disease	44	1	16	2	26	..	18	3	6	2
Other types	7	1	3	2	1	..	3	..	3	..

Other types .....

TABLE 1.—CONTINUED.

ADMISSIONS, DISCHARGES AND DEATHS IN MASSACHUSETTS MENTAL HOSPITALS, 1934, AND RESIDENT POPULATION AND CASES OUT OF INSTITUTION ON SEPTEMBER 30, 1934, IN ACCORDANCE WITH THE DETAILED GROUPINGS OF MENTAL DISORDERS IN THE STANDARD NOMENCLATURE OF DISEASES, BY FIRST AND READMISSIONS.—CONTINUED.

Mental Disorders	All Admissions		All Discharges		All Deaths		Resident Population		Cases Out of Institutions	
	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.
V. *Psychoses Due to Convulsive Disorders (Epilepsy)*	110	56	68	45	45	23	645	278	75	13
Epileptic deterioration	79	38	44	29	39	20	587	240	58	10
Epileptic clouded states	25	16	21	15	6	2	48	34	15	3
Other epileptic types	6	2	3	1	..	1	10	4	2	..
VI. *Psychoses Due to Disturbances of Metabolism, Nutrition or Endocrine Function*	499	49	157	38	326	22	918	237	125	25
Senile Psychoses:										
Simple deterioration	158	7	16	2	162	6	227	32	17	8
Presbyophrenic type	13	2	3	1	24	1	33	5	..	1
Delirious and confused types	12	1	1	1	14	1	11	4	1	..
Depressed and agitated types	28	4	3	3	18	1	63	15	5	..
Paranoid types	51	4	13	3	29	4	175	20	9	2
Involutional Psychoses:										
Melancholia	120	19	61	17	39	5	283	113	60	7
Paranoid types	21	..	7	1	3	..	31	18	3	1
Other types	7	1	3	1	..	..	15	5	5	2
With diseases of the endocrine glands	9	3	6	1	1	1	13	8	5	1
Exhaustion delirium	8	1	4	..	2	..	7	2	4	..
Alzheimer's disease	6	..	..	1	1	..	11	2	..	..
With pellagra	3	..	1	..	1	..	5	1	..	..
With other somatic diseases	63	7	39	7	32	3	44	12	16	3
VII. *Psychoses Due to New Growth*	12	1	5	1	10	..	3	1	..	..
With intracranial neoplasms	4	1	5	1	4	..	2	1	..	..
With other neoplasms	8	..	..	..	6	..	1	..	..	..
VIII. *Psychoses Due to Unknown or Hereditary Causes, but Associated with Organic Changes*	106	17	57	21	38	7	123	57	16	12
With multiple sclerosis	9	..	3	1	2	1	14	5	5	2
With paralysis agitans	5	..	..	..	3	..	10	7	1	..
With Huntington's chorea	5	1	2	..	7	2	13	8	1	..
With other brain or nervous diseases	87	16	52	20	26	4	86	37	9	10
IX. *Disorders of Psychogenic Origin or Without Clearly Defined Tangible Cause or Structural Change*	2,011	903	1,454	756	229	284	7,005	9,289	864	695
Psychoneuroses:										
Anxiety hysteria	11	7	12	5	..	..	4	2	3	2

TABLE 1.—CONTINUED.

ADMISSIONS, DISCHARGES AND DEATHS IN MASSACHUSETTS MENTAL HOSPITALS, 1934, AND RESIDENT POPULATION AND CASES OUT OF INSTITUTION ON SEPTEMBER 30, 1934, IN ACCORDANCE WITH THE DETAILED GROUPINGS OF MENTAL DISORDERS IN THE STANDARD NOMENCLATURE OF DISEASES, BY FIRST AND READMISSIONS.—CONTINUED.

Mental Disorders	All Admissions		All Discharges		All Deaths		Resident Population		Cases Out of Institutions	
	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.
Conversion hysteria:										
Anesthetic type	1	1	1	1	..	..	1	..	..	..
Paralytic type	3	2	2	1	..	..	2	1	1	1
Hyperkinetic type	12	3	9	2	..	..	2	1	..	..
Parasthetic type	3	1	3	1	..	..	..	..	..	..
Autonomic type	5	1		2	..	..	1	1	2	..
Amnesic type	4	1	..	1	..	..	1	1	..	..
Mixed hysterical psychoneurosis	19	3	20	5	..	..	9	2	3	2
Psychasthenia or compulsive states:										
Obsession	10	9	11	10	..	..	8	4	5	1
Compulsive tics and spasms	..	1	..	1	..	..	..	..	1	1
Phobia	7	2	9	2	..	..	3	5	2	1
Mixed compulsive states	7	2	10	2	..	..	3	2	2	1
Neurasthenia	27	9	30	8	1	..	25	16	11	6
Hypochondriasis	11	3	9	3	..	..	4	3	4	1
Reactive depression	40	7	31	5	..	..	8	1	8	1
Anxiety state	20	1	15	3	1	..	4	4	7	3
Mixed psychoneurosis	4	4	7	5	..	1	8	3	4	3
Manic-depressive Psychoses:										
Manic type	182	186	147	149	11	27	239	468	81	133
Depressive type	279	129	247	133	31	31	454	349	133	78
Circular type	1	3	2	4	..	2	19	50	6	5
Mixed type	15	16	15	15	1	2	52	65	11	21
Perplexed type	7	1	2	..	..	..	5	2	3	..
Stuporous type	12	5	10	4	2	2	42	16	8	4
Other types	14	8	12	9	2	..	16	19	6	8
Dementia præcox (schizophrenia):										
Simple type	64	20	34	17	4	9	220	228	25	21
Hebephrenic type	156	73	68	48	34	68	1,287	2,817	84	92
Catatonic type	290	125	191	78	51	42	1,181	1,391	176	91
Paranoid type	391	142	262	113	38	63	1,866	2,506	132	91
Other types	68	30	54	14	3	7	220	197	33	41
Paranoia	8	3	4	2	..	..	15	13	3	1
Paranoid condition	124	20	93	24	17	8	329	180	47	27
With psychopathic personality	65	38	41	45	7	3	107	74	20	13

TABLE 1.—CONCLUDED.

ADMISSIONS, DISCHARGES AND DEATHS IN MASSACHUSETTS MENTAL HOSPITALS, 1934, AND RESIDENT POPULATION AND CASES OUT OF INSTITUTION ON SEPTEMBER 30, 1934, IN ACCORDANCE WITH THE DETAILED GROUPINGS OF MENTAL DISORDERS IN THE STANDARD NOMENCLATURE OF DISEASES, BY FIRST AND READMISSIONS.—CONCLUDED.

Mental Disorders	All Admissions		All Discharges		All Deaths		Resident Population		Cases Out of Institutions	
	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.
With mental deficiency:										
Idiot	7	3	4	1	1	2	41	71	2	1
Imbecile	52	15	24	9	13	8	331	361	12	12
Moron	78	23	55	28	9	7	468	407	27	30
Unknown	14	6	13	6	3	2	30	29	2	1
X. *Undiagnosed Psychoses*	198	57	185	55	12	..	17	48	4	12
XI. *Without Psychosis*	743	317	664	319	57	9	986	134	78	15
Alcoholism	190	108	184	112	1	..	12	2	2	1
Drug addiction	9	2	8	1	1	1	4	1	..	..
Disorders due to epidemic encephalitis	4	4	3	6	..	..	1	1	..	..
Psychopathic personality:										
With pathological sexuality	16	3	15	3	..	..	1	1	1	..
With pathological emotionality	46	23	39	23	..	..	10	2	2	1
With asocial or amoral trends	39	18	38	18	..	..	5	2	..	..
Mixed types	29	16	31	18	..	..	6	..	1	1
Epilepsy	27	9	27	13	1	..	43	1	21	1
Mental deficiency:										
Idiot	1	3	1	2	1	..	10	3	1	..
Imbecile	17	9	18	9	2	..	40	18	1	3
Moron	48	22	54	26	..	3	22	29	3	5
Epilepsy and mental deficiency:										
Idiot	35	2	2	..	19	1	232	11	3	..
Imbecile	36	5	11	2	23	3	364	34	12	1
Moron	31	13	28	9	7	1	184	13	24	..
Other non-psychotic diseases or conditions	128	60	120	56	2	..	47	15	5	2
No other condition	87	20	85	21	..	..	5	1	2	..
XII. *Primary Behavior Disorders*	60	18	57	17	..	..	5	..	..	..
Simple adult maladjustment	23	13	23	12	..	..	2	..	..	..
Primary behavior disorders in children:										
Habit disturbance	2	..	2	..	..	..	3	..	..	..
Conduct disturbance	33	5	30	5	..	..	..	..	..	..
Neurotic traits	2	..	2	..	..	..	..	..	..	..
XIII. *Grand Total*	5,554	1,668	3,403	1,434	1,557	444	12,071	11,125	1,540	883

Note: Admissions and discharges do not include transfers.

We are familiar with this division in patients entering hospitals. However, it is a new approach to divide discharges, deaths and resident population in the same manner. The reason for these divisions will be made evident as the paper progresses. The detail involved in the 120 divisions and subdivisions of Table 1 is so great that no attempt will be made to discuss the individual psychoses. However, the figures are presented for anyone who desires to study a specific psychosis or the subdivisions thereof.

For convenience, Table 2 is inserted which shows the totals for the 12 main groups of mental disorders in the detailed classification. These are divided into admissions, discharges, deaths, resident population, population out of hospitals, and also into first and readmissions. The numbers and percentage distribution of cases in each group are included.

The relative occurrence of any one mental disorder within the five classes outlined will afford an opportunity to note any outstanding tendencies. For instance, certain psychoses may show higher percentages among the discharges than among the admissions, deaths or resident population. Another group may be low in the proportion of discharges, but high in the proportion of deaths. Again, certain psychoses may show high proportions retained in the resident population. This would suggest that, from each year's admissions, they have contributed a number of cases which have tended to chronicity and long residence within hospitals. No sweeping generalizations can be made from the figures, of course, as they present data for one year only. However, experience indicates that, with one or two exceptions, the psychoses show remarkable constancy from year to year for the proportions occurring in admissions, discharges and deaths. An even greater consistency is observed in the proportions for the same psychoses in the resident population. Remembering, then, that we are viewing trends only, and that the findings are in no way final or exact, we shall discuss certain groups which show outstanding tendencies in one of these directions.

TABLE 2.

ADMISSIONS, DISCHARGES, DEATHS AT MASSACHUSETTS MENTAL HOSPITALS DURING 1934 AND RESIDENT POPULATION AND CASES OUT OF INSTITUTIONS ON SEPTEMBER 30, 1934, DIVIDED INTO THE TWELVE MAIN GROUPINGS OF MENTAL DISORDERS ACCORDING TO THE NEW CLASSIFICATION, BY STATUS OF ADMISSION: NUMBERS AND PERCENTAGES.

Mental Disorders		Admissions		Discharges		Deaths		Resident Population		Case out of Institutions but on Books	
		1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.	1st Adm.	Re-adm.
Psychoses due to or associated with infection....	No.	373	54	153	39	149	35	581	333	104	34
	%	6.7	3.2	4.5	2.7	9.6	7.8	4.8	2.9	6.7	3.8
Psychoses due to intoxication.....	No.	508	129	384	110	70	26	788	563	135	54
	%	9.2	7.7	11.2	7.6	4.5	5.8	6.5	5.0	8.8	6.1
Psychoses due to trauma.....	No.	41	5	30	5	8	..	46	19	7	1
	%	.7	.3	.8	.4	.5	..	.4	.2	.4	.1
Psychoses due to disturbance of circulation.....	No.	893	62	189	28	613	38	954	166	132	24
	%	16.1	3.7	5.6	1.9	39.4	8.5	7.9	1.4	8.6	2.7
Psychoses due to convulsive disorders (epilepsy).	No.	110	56	68	45	45	23	645	278	75	13
	%	2.0	3.3	2.0	3.1	2.8	5.1	5.3	2.5	4.8	1.4
Psychoses due to disturbances of metabolism, growth, nutrition or endocrine function.....	No.	499	49	157	38	326	22	918	237	125	25
	%	8.9	2.9	4.6	2.6	20.9	4.9	7.6	2.1	8.1	2.8
Psychoses due to new growth.....	No.	12	1	5	1	10	..	3	1	..	..
	%	.2	.06	.2	.07	.6	..	.02	.01	..	..
Psychoses due to unknown or hereditary causes, but associated with organic changes.....	No.	106	17	57	21	38	7	123	57	16	12
	%	1.9	1.0	1.7	1.5	2.4	1.6	1.0	.5	1.0	1.3
Disorders of psychogenic origin or without clearly defined tangible cause or structural change....	No.	2,011	903	1,454	756	229	284	7,005	9,289	864	693
	%	36.3	54.1	42.8	52.7	14.7	63.9	58.1	83.5	56.1	78.5
Undiagnosed psychoses	No.	198	57	185	55	12	..	17	48	4	12
	%	3.6	3.4	5.4	3.8	.8	..	.1	.4	.3	1.3
Without psychosis	No.	743	317	664	319	57	9	986	134	78	15
	%	13.4	19.0	19.5	22.3	3.7	2.0	8.2	1.2	5.1	1.7
Primary behavior disorders.....	No.	60	18	57	17	..	..	5	..	..	..
	%	1.1	1.1	1.7	1.2	..	..	.04	..	..	..
Grand Total	No.	5,554	1,668	3,403	1,434	1,557	444	12,071	11,125	1,540	883
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

4. Admissions, Discharges, Deaths, Resident Population and Patients Out of Hospitals, Etc., by First and Readmissions in Certain Main Groups of the Detailed Classification: Percentages.

"Psychoses due to or associated with infection"[7] tend to be more prevalent in first admissions (6 per cent) than in readmissions (3 per cent). Among the first admissions this mental disorder makes up 6 per cent of admissions, 4 per cent of discharges, 9 per cent of deaths, and 4 per cent of the resident population. In first admissions, then, this group apparently has a low proportion of discharges, while the higher proportions in the deaths prevent any accumulation within the resident population. In the readmissions we find 3 per cent of admissions, 2 per cent of discharges, 7 per cent of deaths and 2 per cent of the resident population. High proportions in the deaths characterize the readmissions also, and prevent any accumulation within hospitals.

"Psychoses due to intoxication"[8] are more prominent in first admissions (9 per cent) than in readmissions (7 per cent). In first admissions this mental disorder comprises 9 per cent of admissions, 11 per cent of discharges, 4 per cent of deaths and 6 per cent of the resident population. Here we have a group showing high proportions in the discharges, a small proportion of deaths and but little tendency to retention within hospitals. In the readmissions we find 7 per cent of admissions, 7 per cent of discharges, 5 per cent of deaths and 5 per cent of the resident population. The readmissions do not do as well in the matter of discharge as the first admissions, and they show relatively higher proportions among the deaths.

[7] This mental disorder includes (1) psychoses with syphilis of the central nervous system (a) meningo-encephalitic type (general paresis), (b) meningo-vascular type (cerebral syphilis), (c) psychoses with intracranial gumma, (d) other types; (2) psychoses with tuberculous meningitis; (3) psychoses with meningitis; (4) psychoses with epidemic encephalitis; (5) psychoses with acute chorea (Sydenham's); (6) psychoses with other infectious disease; and (7) post-infectious psychoses.

[8] Psychoses due to intoxication include: (1) Psychoses due to alcohol, (a) pathological intoxication, (b) delirium tremens, (c) Korsakow's psychosis, (d) acute hallucinosis, and (e) other types; (2) psychoses due to drugs or other exogenous poisons, (a) psychoses due to metals, (b) psychoses due to gases, (c) psychoses due to opium and derivatives and (d) psychoses due to other drugs.

"Psychoses due to disturbances of circulation"[9] are four times as prevalent in first admissions (16 per cent) as in readmissions (3.7 per cent). The first admissions of this group constitute 16 per cent of admissions, 5 per cent of discharges, 39 per cent of deaths and 7 per cent of the resident population. Here we find an extremely high proportion among the deaths. The fact that these patients die in such large numbers reduces the possibility of a high degree of retention within hospitals. To a certain extent the high proportion of deaths in first admissions accounts also for the greatly reduced number of readmissions with this mental disorder. They do not survive to become readmissions. The readmitted group comprises 3 per cent of admissions. 1 per cent of discharges, 8 per cent of deaths and 1 per cent of the resident population. They present the same general characteristics as the first admissions with low proportions of discharges and high proportions of deaths.

"Psychoses due to disturbances of metabolism, growth, nutrition or endocrine function"[10] present higher proportions in first admissions (8 per cent) than in readmissions (2 per cent). Among the first admissions they comprise 8 per cent of admissions, 4 per cent of discharges, 20 per cent of deaths and 7 per cent of the resident population. In common with the preceding group associated with disturbances of circulation we find a low proportion of discharges and an extremely high percentage of deaths. This rapid removal of patients through death is partially responsible for the low percentages noted in the resident population. The readmissions present the same general characteristics with a high proportion among the deaths.

[9] Psychoses due to disturbances of circulation include (1) psychoses with cerebral embolism, (2) psychoses with cerebral arteriosclerosis, (3) psychoses with cardiorenal disease, and (4) other types.

[10] Psychoses due to disturbances of metabolism, growth, nutrition or endocrine function include: (1) Senile psychoses, (a) simple deterioration, (b) presbyophrenic type, (c) delirious and confused types, (d) depressed and agitated types, and (e) paranoid types; (2) Alzheimer's disease; (3) involutional psychoses, (a) melancholia, (b) paranoid types, and (c) other types; (4) psychoses with diseases of the endocrine glands; (5) exhaustion delirium; (6) psychoses with pellagra; (7) psychoses with other somatic diseases.

"Disorders of psychogenic origin or without clearly defined tangible cause or structural change"[11] reverse the trend of the above psychoses and present larger proportions in readmissions (54 per cent) than in first admissions (36 per cent). This main grouping is rather inclusive, however, and embraces the psychoneuroses, paranoia, manic-depressive psychoses, dementia præcox, the psychoses with psychopathic personality and mental deficiency. In first admissions this mental disorder makes up 36 per cent of admissions, 42 per cent of discharges, 14 per cent of deaths and 58 per cent of the resident population. Thus, we see that large proportions are discharged but few die, and there is a definite tendency toward retention in mental hospitals. Among the readmissions they comprise 54 per cent of admissions, 52 per cent of discharges, 63 per cent of deaths and 83 per cent of the resident population. Here we have general characteristics which differ radically from the first admissions. The readmissions show lower proportions of discharges but higher percentages of deaths and vastly higher proportions in the resident population. Disorders of psychogenic origin contribute 5 out of every 6 readmitted patients within the resident population. The significant fact is noted here that first admissions of this classification have a fairly good chance of discharge, and deaths are very few. On subsequent admissions, however, the opportunity for discharge is less, the proportion of deaths increases greatly, and there is a far greater chance of retention within institutions. The findings in this main group demonstrate quite clearly the necessity for a separate consideration of first and readmissions. The results here are so widely separated that any mixture of the two would only hopelessly confuse any study of the matter of discharge.

[11] Disorders of psychogenic origin or without clearly defined tangible cause or structural change include; (1) Psychoneuroses, (a) anxiety hysteria, (b) conversion hysteria, (c) psychasthenia or compulsive states, (d) neurasthenia, (e) hypochondriasis, (f) reactive depression, (g) anxiety state, (h) mixed psychoneurosis; (2) manic-depressive psychoses, (a) manic type, (b) depressive type, (c) circular type, (d) mixed type, (e) perplexed type, (f) stuporous type, (g) other types; (3) dementia præcox (schizophrenia), (a) simple type, (b) hebephrenic type, (c) catatonic type, (d) paranoid type, (e) other types; (4) paranoia; (5) paranoid conditions; (6) psychoses with psychopathic personality; (7) psychoses with mental deficiency.

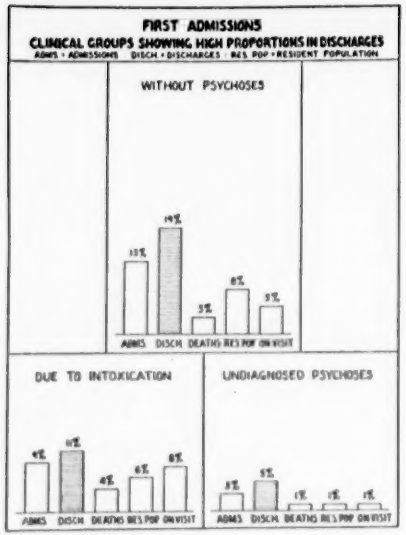
The " Undiagnosed Psychoses " constitute 3 per cent of both first and readmissions. In first admissions they make up 3 per cent of admissions, 5 per cent of discharges, .8 per cent of deaths, and but one-tenth of one per cent of the resident population. Here we have a group which is quite high in discharges and which presents remarkably low percentages in the resident population. The readmissions for this group in general present the same characteristics.

Cases " Without Psychoses " [12] present lower proportions in first admissions (13 per cent) than in readmissions (19 per cent). In first admissions they show 13 per cent of admissions, 19 per cent of discharges, 3 per cent of deaths and 8 per cent of the resident population. Here we have a high proportion of discharges, and a low proportion of deaths. The readmissions make up 19 per cent of admissions, 22 per cent of discharges, 2 per cent of deaths, and 1 per cent of the resident population. Readmissions likewise show a high proportion of discharges, and a low proportion of deaths and resident population. Again in this classification we note that there are proportionately more readmissions than first admissions.

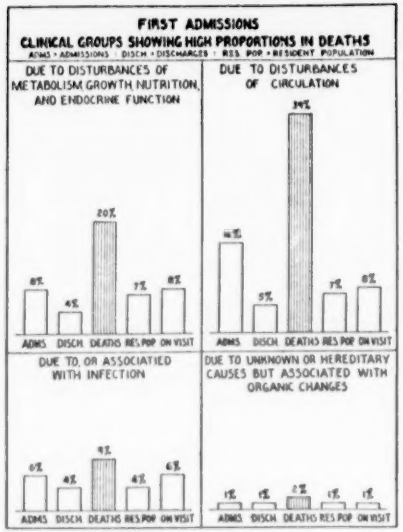
5. Tendencies toward Discharge, Death or Retention within Hospitals Observed in Certain Clinical Groups.

The first admissions show that certain of the main groups of mental disorders tend to show higher proportions in discharges, deaths, or in the resident population. Again recalling that we are viewing trends only, we present Graphs 1, 2, and 3 which outline the percentages falling in each class. Graph 1 presents the three groups which show high proportions of discharges, namely, the group without psychosis, the psychoses due to intoxication, and the undiagnosed psychoses. Each shows a high proportion in discharges with definitely lower proportions in the resident population. These groups tend to return patients to the community and show no tendency for accumulation within institutions.

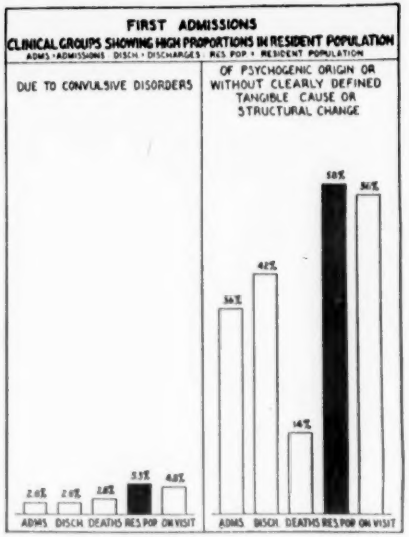
[12] The " Without psychoses " group includes: (1) Epilepsy, (2) alcoholism, (3) drug addiction, (4) mental deficiency, (5) disorders of personality due to epidemic encephalitis, (6) psychopathic personality (a) with pathological sexuality, (b) with pathological emotionality, (c) with asocial or amoral trends, (d) mixed types.



GRAPH 1.



GRAPH 2.

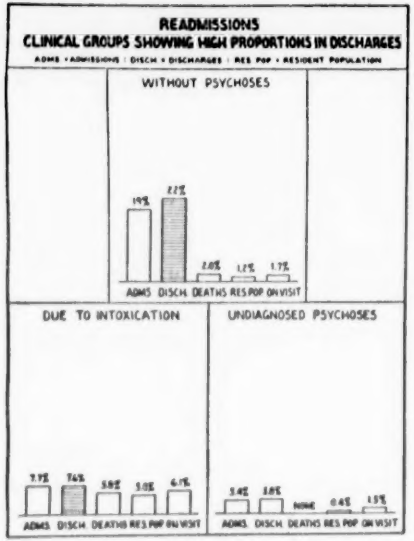


GRAPH 3.

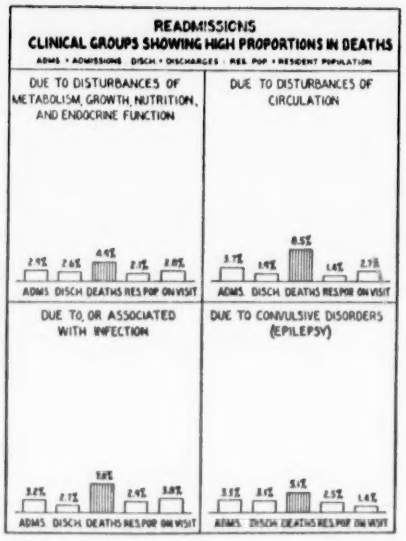
Graph 2 presents the four main groups which show high proportions among the deaths, namely, psychoses due to disturbances of metabolism, growth, etc.; psychoses due to disturbances of circulation; psychoses due to or associated with infection; and psychoses due to unknown or hereditary causes, etc. Each shows a high proportion of deaths with definitely lower proportions of discharges and resident cases. These four groups account for over 70 per cent of the deaths in mental hospitals.

Graph 3 presents the mental disorders showing high proportions in the resident population, namely, psychoses due to convulsive disorders, and psychoses of psychogenic origin, etc. These show high proportions in the resident population accompanied by lower proportions in the deaths and discharges. From the administrative viewpoint these psychoses are quite serious. They will contribute to the resident population by filling hospital beds with cases tending to long hospital residence.

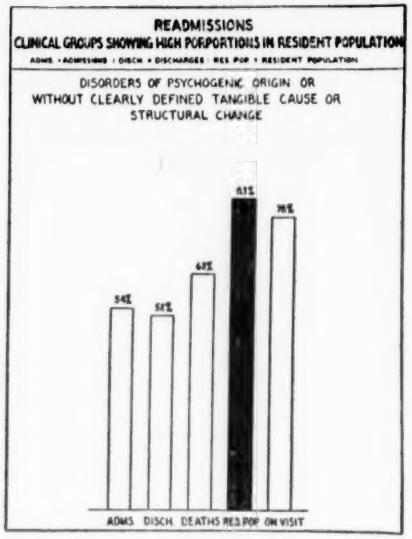
The readmissions also show certain trends which are presented in Graphs 4, 5 and 6. Graph 4 presents the mental disorders showing high proportions among the discharges, namely, the group without psychoses, the psychoses due to intoxication and the undiagnosed psychoses. Each shows a high proportion among the discharges with a low proportion in the resident population. They are the groups which tend to return patients to the community and show little tendency for accumulation in the resident population. Graph 5 demonstrates the main groups showing high proportions among the deaths, namely, psychoses due to disturbances of metabolism, growth, etc., psychoses due to disturbances of circulation, psychoses due to or associated with infection, and psychoses due to convulsive disorders (epilepsy). These groups total 26 per cent of all deaths which is much lower than the total of 70 per cent in the first admissions. We note that the psychoses due to convulsive disorders (epilepsy), displace psychoses due to unknown or hereditary causes as viewed in the first admissions. Graph 6 presents the single main grouping of readmissions showing high proportions in the resident population, namely, disorders of psychogenic origin or without clearly defined tangible causes, etc. From the administrative viewpoint the readmissions with this psychosis offer a definite challenge as we see that this one group



Graph 4.



Graph 5.



Graph 6.

will fill five out of every six beds assigned to readmitted cases. While this mental disorder made up 58 per cent of the resident population in first admissions, it makes up 83 per cent of the resident population among the readmissions. This group also contributes 63 per cent of the deaths which is much higher than the 14 per cent of deaths observed in the first admissions. Incidentally the marked differences between first and readmissions in both deaths and resident population demonstrate clearly the necessity of a separate statistical consideration of first and readmissions.[13]

Summary.

1. The American Psychiatric Association together with 21 other national organizations cooperated in writing the new "Standard Classified Nomenclature of Diseases" which was initiated in 1928. The first edition of the nomenclature (1933) carrying the new psychiatric classification, was revised and the final versions of the detailed and condensed classifications were officially adopted by the association in May, 1934.

2. Massachusetts mental hospitals and state schools adopted the new nomenclature in both mental diseases and mental deficiency as of June 1, 1934, and reclassified all admissions, discharges and deaths from that date back to the beginning of the statistical year, October 1, 1933. As the statistical system includes complete data on the resident population and patients out of institutions as well, all patients falling in these two groups were reclassified. A total of 36,711 diagnoses were reviewed by the medical staffs of the various hospitals. At the central department the new diagnoses were then transferred to statistical punch cards which are used in preparing annual statistics for all institutions and for the department annual report as well.

3. The figures for the number of cases falling in the 120 groups of the detailed classification are presented. These apply to all ad-

[13] Owing to the length of this communication and the necessary space limitations it has been impossible to include in the present printing the section of this paper entitled "A New Method of Calculating Discharge Rates in Mental Diseases with Special Consideration of the Age Factor." This second section appeared in the New England Journal of Medicine, issue of October 31, 1935 and reprints will be available for those interested in following up its application to the material of the new psychiatric classification.

missions (7222 cases), discharges (4837 cases), deaths 2001 cases) during the year 1934, and the resident population (23,196 cases) and patients out, etc., (2423 cases) at the end of the statistical year Sepember 30, 1934, by first and readmissions (Table 1).

4. The twelve main groups of the detailed classification are discussed from the viewpoint of numbers and percentages occurring among the admissions, discharges, deaths, resident population and patients out of institutions, for the year 1934. (Table 2). The numerical importance of the twelve main groups in the admissions is shown in the following table (percentages arranged in order of importance for first admissions):

Mental disorders.	First admissions.	Readmissions.
Of psychogenic origin or without clearly defined tangible cause	36	54
Due to disturbances of circulation	16	3
Due to intoxication	9	7
Due to disturbances of metabolism, growth, etc	8	2
Due to infection	6	3
Undiagnosed	3	3
Due to convulsive disorders (epilepsy)	2	3
Due to unknown or hereditary causes, etc	1	1
Primary behavior disorders	1	1
Due to trauma	.7	.3
Due to new growth	.2	.06
Without psychoses	13	19

5. Certain of the main groups of the detailed classification tend to show high proportions in discharges, deaths or the resident population. The groups constituting more than 1.5 per cent of first admissions align themselves as follows:

High proportions in discharges.	High proportions in deaths.	High proportions in resident population.
Without psychoses	Due to disturbances of metabolism, etc.	Due to convulsive disorders (epilepsy)
Due to intoxication	Due to disturbances of circulation	Of psychogenic origin or without clearly defined tangible cause
Undiagnosed psychoses	Due to or associated with infection	
(Graph 1)	Due to unknown or hereditary causes	(Graph 3)
	(Graph 2)	

In readmissions the following groupings are noted:

High proportions in discharges.	High proportions in deaths.	High proportions in resident population.
Without psychoses	Due to disturbances of metabolism, etc.	Of psychogenic origin or without clearly defined tangible cause
Due to intoxication	Due to disturbances of circulation	
Undiagnosed psychoses	Due to or associated with infection	
(Graph 4)	Due to convulsive disorders (epilepsy)	(Graph 6)
	(Graph 5)	

DISCUSSION.

Dr. John L. Van de Mark (Rochester, N. Y.).

Mr. Chairman: Those who have heard this presentation must be impressed with the fact that the methods of approach to statistical analyses are practically unlimited. This paper represents a large amount of thought and effort and I want to commend the writer upon the logical manner in which he has presented his data.

No doubt, most of the listeners were interested in the writer's description of the organization and conduct of his department in Massachusetts. My first impression is that a central statistical bureau is a good solution of a difficult problem, yet I am somewhat uncertain as to what effect it might have on the individual institution. Our hospitals are often asked for facts of a statistical nature which we should be prepared to supply.

The study of age distribution within the classified groups is interesting and verifies facts that most of us had assumed to be true, namely, that the younger age groups should have a better prognosis than those of more advanced years. Analysis of first and readmissions by psychoses and age groups should prove of value as a prognostic guide. I have some doubt as to the value of such statistics for individual institutions, but for state departments it would seem to have real worth.

Statistics for individual hospitals when divided minutely might be misleading. From an administrative point of view hospitals differ materially. Hospitals housing a large percentage of transfers must of necessity have fewer on parole, a smaller number in occupational therapy and a larger death rate. This has a decided influence on the apparent effectiveness and efficiency of the hospital unit as compared with others—and this is what statistics do.

I find myself quite in agreement with Dr. Dayton in his analysis of discharge ratios. It has never been clear to me why a comparison should be made between those admitted and discharged without definitely indicating the number of those discharged who are drawn from the accumulations of previous years. Recently my attention was called to a report which showed that during a fiscal period seven cases of dementia præcox were admitted

whose ages were seventy and over. The same report stated that there were 228 deaths in this age group of dementia præcox patients. It seems to me that such statistics might be misleading to the inexperienced observer.

Another statistical angle of approach to the relationship between discharges and age groups was presented by Dr. Pollock ten years ago. In his paper entitled "The Outcome of Mental Disease in the United States" he showed that there were 16.8 per cent recoveries in the age group of 40 to 45, while in the group aged 60 to 65 there were 10.7 per cent recoveries. In the same paper he showed that 44.3 per cent of all recoveries occurred within four months after admission, 62 per cent within six months and that 75 per cent occurred within the first year of hospital residence. From this analysis it would appear that the age on admission and discharge among the recovered group, differs but little.

These facts do not in any way challenge the statistics presented here to-day but they are cited merely to call attention to a different angle of approach.

There are two questions in my mind. First, whether or not statistical tables, such as have been presented by Dr. Dayton, are too complicated for standardized procedure? The second question is in regard to the statistical year. The United States Department of Commerce uses the calendar year and various states use fiscal years which seem to me to complicate the preparation of statistics. Would it not be practical to standardize the statistical year as well as to standardize the tables, nomenclature, etc.

Dr. Abraham Myerson (Boston, Mass.).—Mr. Chairman, I think there is something more to be said for this paper than that it is an arduous and valuable work, which tells what happens to the people admitted to our hospitals. To illustrate my point, I am going to cite something that happened several years ago when I was studying feeblemindedness and ran across Dayton's paper on the death rate in the various types of mental deficiency. Dayton showed that the people with mental deficiency die in direct ratio to the degree of involvement, that is, the death rate is very high in the markedly feebleminded persons, becomes much lower as one reaches the middle group and finally in the moron group the morbidity or mortality, more nearly corresponds to that of the average population, though somewhat higher.

I followed up that statistical clue and studying the population of the Walter E. Fernald State School, we found this to be the case: first, when we divided the feebleminded into three groups (forgetting the barbarous terms of idiot, imbecile and moron), that the convulsion rate of the lowest third was highest; that the middle third had a lesser convulsion rate and the upper third had the lowest convulsion rate.

Then studying the same groups from the standpoint of obvious physical defects and excluding such things as teeth and tonsils and the kinds of physical deficiencies that are found in the general population, but taking into account only those gross physical differences from the normal population, visible, so to speak, to the eye, the stature, the weight, general bodily development, the distribution and symmetry of the members and matters of

that kind, we found that the group which corresponded to the lowest mental level had by far the highest amount of physical deficiency and that the moron group more nearly corresponded to the average population. In other words, the death rate which he pointed out statistically had a direct relationship to what you could see if you studied the cases, that there was physical deficiency and physical disease which ran roughly parallel with that morbidity.

The study which he reported today seems to me points a statistical finger which indicates a direction for research for the clinician. It is obvious that we are not so much concerned with death rates as with a biological something which makes it difficult for the individual who becomes mentally sick to recover and this something relates to his general health and vitality. The factor which operates in dementia præcox and which makes the rate of recovery so much higher at 20 than at 40 is a matter for us to study. It relates, undoubtedly, to something organic and vital in, let us say, the total physical and mental configuration of the individual. Something happens as life goes on which increases the death rate for the psychoses and impairs the qualities necessary for recovery. What those factors are the statistician cannot find out. It remains for the clinician to follow the statistical finger to researches which will uncover the factors.

This paper has certainly indicated to me a way of work for my research laboratory.

Dr. William A. Bryan (Worcester, Mass.).—Mr. President, may I interject this one particular thought? I, of course, am interested in the problem from the standpoint of the administrator and it seems to me that we have in this method of Dr. Dayton's a measuring stick by which administrators may measure the efficiency of psychiatric and medical staffs. I have a very distinct feeling that we have not been using this sort of measuring stick as to the efficiency of our institutions as much as we should. After all, this is our production—the recovery rate of our institution. I have a very definite conviction that the recovery rate as outlined by Dr. Dayton is the real index of what we are actually accomplishing. I do not think it makes much difference whether we have a medical staff that is able to write good, legible notes or whether they are faithful and conscientious in their ward rounds. In the last analysis the real question is how many patients are being discharged from the hospital and how are they going about the task of increasing this recovery rate? I believe that the work of the mental hospital of the future will be judged by just such a criterion as Dr. Dayton has given us this afternoon.

Dr. Arthur H. Ruggles (Providence, R. I.).—Mr. President, I want to say just a word on the earlier age group. Dr. Dayton's presentation, it seems to me, should not go by without special attention to the whole problem of preventive psychiatry. Those of us who were here yesterday afternoon in the symposium on psychiatry and education remember reference to the question of the teacher missing the importance of the shy and seclusive boy and girl, and if we could only impress on the teacher, on the general prac-

titioner, on the pediatrician, on all those people who are dealing with young people the importance of the very significant fact that has been brought out by Dr. Dayton, that if we are going to cure any reasonable number of cases of dementia præcox, the one thing that we must do is to give them early treatment. You may notice that Dr. Dayton was very modest in telling us how many went out of the hospital, but that is the important test—how many were able to leave the hospital and go out into the community? Certainly we would be very derelict in our own duty if we did not realize that this valuable study makes us the master of the destiny of so many people developing mental disease in the early years of life. No one can doubt that the figures were subject to critical analysis, so critical that many of the facts that I am sure Dr. Dayton did not bring out were considered when he came to the conclusion that he did; and when we see the percentages so tremendously in favor of treatment in the early years, we must realize that our efforts must be redoubled if we are going to do something toward prevention in mental disease.

Dr. Neil A. Dayton (Boston, Mass.).—I want to express my appreciation of the painstaking discussion which Dr. Van de Mark has prepared.

It was not my intention to suggest that this method of calculating discharge rates should be used as a measuring rod in comparing the work of different hospitals. This comparison would be very difficult because of the many factors mentioned by Dr. Van de Mark. Some of our hospitals are largely transfer units tending to accumulate patients of a chronic type. To compare the discharge rates of these institutions with those of the more active admission hospitals would be obviously unfair. I meant to imply that this method of calculating discharge rates would be of more use in showing the differences between the respective psychoses rather than confining it to the demonstration of differences between individual hospitals.

I can't quite agree that this method of calculating discharge rates is too complicated. We find that it is not any more involved than the other routine statistical compilations done every year. I rather feel that any method which gives us better information or tends to clarify our difficulties is well worthwhile no matter how much work may be involved. We appreciate the fact, of course, that it is simpler for us to make these calculations where we have centralized our statistics and have adequate mechanical aids and the clerical assistance necessary for their completion. In our state we take all statistical work out of the hands of the institutions and do it centrally in the Department of Mental Diseases. This centralization greatly facilitates the preparation and standardization of statistical material which would be rather difficult if attempted by a single institution. In fact this preparation of statistics by individual institutions is responsible for a great many of the variations between hospitals which are so strikingly evident. I hope some day to see all of the larger states compiling their statistics centrally. In this way we will not be as restricted as we are at present, in attempting to compare figures for different states which are really not comparable. We need better figures on mental diseases. As a matter of fact, our country-wide statistics on mental

disease are not very satisfactory and will not be until we arrive at some definite standardization of criteria in use in the different states.

Dr. Myerson brought out the point that this method points the finger for further research. This, of course, is the ultimate aim of all true research. We never settle anything. We can, however, make suggestions for future development along certain well defined lines.

Dr. Bryan brings out the pertinent point that this method of comparison is very useful and *should* be used in comparing the work of different institutions. In a very limited way this might have some application, although primarily we did not think of it in this connection. It could, of course, give us interesting data on the admitting hospitals in checking their output from year to year. That is, if we do not wish to compare the work of the different institutions for any one year we, at least, may wish to check up on the discharge rate of a single institution over a period of several years. This would check the success of our medical staff in returning patients of a certain psychosis and age, to the community, and show us whether or not our discharge rates were increasing as time goes on. One of the main points of this paper, and one which we wish to repeat, is the necessity of considering the age factor in the matter of discharge. When we show the discharge rate of a certain hospital in respect to cases of dementia præcox, age 40 to 49 years, we are reducing the scope of our data to a smaller and a better defined grouping. This will give us results less subject to criticism than our old methods of the past.

SUMMARY OF THE REPORT OF THE AMERICAN NEUROLOGICAL ASSOCIATION COMMITTEE FOR THE INVESTIGATION OF STERILIZATION.

By ABRAHAM MYERSON, M. D.,
Chairman of the Committee.

The term sterilization should apply only to the blocking or cutting of the vas deferens in the male and the fallopian tubes in the female. Eugenical sterilization is carried out for the purpose of preventing the procreation of those who will probably transmit to their offspring certain defective qualities and to prevent which, legislation is enacted. We may also concede that these measures involve no real cruelty since they are done under modern surgical conditions and with the best surgical technique; furthermore, that these operations do not materially lower or injure sexual power or sexual gratification, nor do they in any sense involve a change of personality or a psychic mutilation.

The laws are reviewed in the report. The following American states have enacted sterilization laws: Alabama, Arizona, California, Connecticut, Delaware, Idaho, Indiana, Iowa, Kansas, Maine, Michigan, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, North Carolina, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Vermont, Virginia, Washington, West Virginia and Wisconsin. The following foreign states or countries—Alberta and British Columbia in Canada, Denmark, Germany and Switzerland have also enacted and put into operation eugenic laws. The following may be stated of these laws: California is the only state in which anything like a thoroughgoing enforcement has taken place, and Germany is the only foreign country in which the measure has been carried out in accordance with its provisions. In most of the states of the union the law is (1) either a dead-letter in view of the few cases sterilized; (2) although the enactment often provides for a compulsory sterilization, the enforcement is largely on a voluntary or highly selective basis; (3) in the most of the American states there is social discrimination inasmuch as the bill is directed against inmates

of state institutions and does not touch those individuals in private institutions or in the community. There is very marked divergence in the degree of enforcement although, on the whole, the provisions of the laws are fairly uniform.

In the main, these laws provide for the sterilization (and in rare cases castration) of (1) the hereditarily feebleminded, insane and epileptic; and (2) certain criminal groups. The German law is by far the most specific and direct of the laws which have been passed, since it mentions by name schizophrenia, manic-depressive psychosis, the various organic diseases of the nervous system, such as Huntington's chorea and Friedreich's ataxia, and the diseases of the special sense organs which have been demonstrated to be hereditary, as well as certain of the chronic alcoholics.

The report then considers the main arguments for sterilization which may be classified as follows: (1) Insanity, feeblemindedness, epilepsy, pauperism, alcoholism and certain forms of criminality are on the increase. (2) These defective people propagate at a greater rate than the normal population. Everywhere in the popular literature on the subject, the large families of the feebleminded, epileptic, and insane are stressed. (3) A third argument is that these conditions are fundamentally and mainly hereditary and it is common to speak of insanity, feeblemindedness, epilepsy, pauperism and criminality as if they were unitary traits and at the same time were linked together as a psychopathic set of trends. (4) The proponents of eugenics usually stress the environment as, on the whole, of much less importance than the germplasm in the creation of adverse social status, of mental disease, of criminality and of social maladjustment generally.

The committee has studied the statistics on the subject, which are to be found in the writings of Dayton, Popenoe, Myerson, Pollock and Furbush, Ellen Winston, the report of the British Departmental Committee on Sterilization, the statistics of the life insurance companies, and the census reports. The following may be stated: First, that the rate of commitment, when corrected for age, is certainly not increasing in most of the cultural countries of the world. There is some degree of hospital accumulation of cases but in general the ratio of new cases to the total population in most of the diseases is either stationary or declining. The only conditions which are increasing are the senile psychoses and the psy-

choses associated with cerebral arterial disease, and even these cases show no disproportionate increase when it is kept in mind that the age of the population is increasing, since there is a lower birth-rate and a greater longevity.

Furthermore, this trend is substantiated, logically and factually, by a study of the actual statistics of large groups of the cases of mental disease and feeblemindedness. Thus, (1) the marriage rate is very definitely lower in these conditions than in the total population. Especially is this true of the very cases which tend to be hereditary, such as feeblemindedness and dementia præcox. (2) The birth-rate of those psychotic individuals who marry is definitely much lower than that of the total population. The families from which the feebleminded come show no disproportionate birth-rate and in general show the birth-rate of the lower and middle classes of the community. The feebleminded themselves have, on the whole, a low birth-rate despite the mythical families which are cited in the propaganda literature. (3) The death rate in all forms of mental disease and feeblemindedness is definitely higher than that of the general population. (4) These groups tend, on the whole, to have a greater degree of sterility than the total population. In short, all the actual statistics on the matter and the biological trends as indicated by the marriage rate, birth-rate, death rate, divorce rate and fertility rate indicate that these groups are not increasing and, if anything, are declining; that while the problem is huge, there is nothing new or increasingly alarming about it.

The committee points out (1) that marriage is a selective barrier acting eugenically insofar as mental disease and defect are concerned; (2) that a high commitment rate and consequently the high cost of maintaining the mentally sick is not necessarily an actual increase in the cost of caring for the mentally sick and defective, since there is a community cost independent of commitment and since the social order is enhanced when the insane and the feebleminded are committed.

The committee reviews the present status of genetics and states that genetics and eugenics are different departments of science at the present time, the first being an experimental science which cannot as yet be translated into terms of human eugenics with any degree of certainty, and certainly not in the case of the mental diseases which themselves are poorly defined and ill-understood and

concerning which no experimentation, the final resort of science, is possible. Moreover, it may be definitely stated on the basis of present-day genetics that any separation of the environment and the germplasm as independent forces belongs to a past scientific view-point. *Without the appropriate environment no genetic quality can express itself.* The environment may be so focused on the germplasm as to increase the mutation rate. The evolution of the individual may be altered by experimental techniques of one type or another. This concept of the inter-dependence of the environment and the germplasm by no means minimizes the importance of the latter, nor does it give ground to believe that eugenics will never be a science; it merely means that for the present, at any rate, no thorough-going application of the laws of genetics to human life and especially to the mental and personality diseases is possible.

The committee then takes up the question of the inheritance of certain of the specific diseases or conditions of psychiatric importance. The concept that has dominated the situation for many years is that of polymorphism, by which it is assumed that many diverse characters have the same biological significance and represent the various manifestations of a psychopathic unitary character. Thus, feeblemindedness, insanity, epilepsy, criminality, the organic diseases of the central nervous system, the degenerative diseases of the sense organs, as well as a multitude of other characters including even tuberculosis and cancer have classically been considered as phases of polymorphism. Whatever studies have been done in recent years have mainly discredited this concept and it can at the present time be stated that while there may be some interrelationship between the forms of feeblemindedness and the mental diseases and epilepsy, this cannot be proven, and the bulk of the evidence is against it. Moreover, it can be quite definitely stated that there are types of mental disease and of feeblemindedness which biologically are of quite diverse significance and cannot be lumped together in determining the heredity of any individual.

If the studies concerning the various mental diseases of hereditary significance are evaluated, the following appears:

(1) That these studies have not, on the whole, been satisfactorily done, however painstakingly and laboriously the research workers have operated. In the first place, there is no study of psy-

chopathic constitution of the general population with which the psychopathic inheritance of the mentally diseased may be compared. The numbers of the normal population studied are altogether insufficient and haphazardly selected.

(2) The samples have, as a rule, not been sufficiently large and often represent a conscious or unconscious selection which militates against the results claimed.

(3) Most of the work represents hearsay evidence—the social field worker type of research which in many cases may be dismissed as statistical gossip. There are very few researches in which the relatives, direct and collateral of the insane, of the feebleminded or epileptics have been directly or personally studied. In many instances, the bias of the worker is clearly apparent.

Bearing in mind these various defects of the researches which have been carried out, the committee states the following:

(1) That in dementia præcox there appears to be some hereditary factor at work which, however, cannot be classified as Mendelian, whether as of simple or of multifactorial type. The incidence of dementia præcox cannot be predicted by a study of the family histories although the clumping of the cases in various family groups indicates that a germplasm factor is at work, while the environment as a releasing factor cannot be excluded.

(2) The same may be stated in the case of manic-depressive psychosis. The general literature leads to the conclusion that it is more hereditary and more predictable than dementia præcox, but a study of identical twins does not bear this out. Whatever hereditary factor is operating in manic-depressive psychosis, it cannot be defined in Mendelian terms at the present time.

(3) In respect to feeblemindedness the following may be stated: From whatever angle one approaches this important subject, the importance of heredity as a factor appears conspicuously. There is, undoubtedly, no condition of psychiatric importance in which heredity is a greater factor than in the case of feeblemindedness.

We may dismiss from our consideration such families as the Nams, the Kallikaks, the Jukes, and the other classical families of the popular lore. The high birth-rate, the threatened swamping of the normal population by the feebleminded—all these are myths. Nevertheless, whatever approach is taken towards the prevention of feeblemindedness must take into account the hereditary factor.

(4) It may be stated of epilepsy that its hereditary relationships have not, on the whole, been established in any conclusive way. Most of the epileptics come from so-called normal families. The occurrence of epilepsy in any family cannot be predicted. A good deal of epilepsy is clearly of environmental origin as in the case of brain trauma, syphilis and other conditions which every clinician has clearly in mind. Moreover, epilepsy may be experimentally produced in animals. There may be an epileptic constitution which is inheritable but the evidence on the whole clearly points towards disease and the environment as actually producing the epileptic attack.

(5) When the question of criminality is considered, it may be stated categorically that the world's authorities on the matter are, in the main, opposed to any eugenical measures as having any relevance to the possibility of any success in lessening the amount of crime. There probably is in the case of some criminals a type of character which under ordinary social circumstances expresses itself in crime. There is no way whatever of predicting the occurrence of this type of character, and for the bulk of criminals no such inborn character need be postulated. In short, human character is too complex a reaction between the unknown native disposition of the individual and the social-economic-traditional pressures of the community to be resolved eugenically by any genetic knowledge which we have at the present time or which we are likely to have in the near future.

The committee then takes up the question whether there are asset qualities connected with mental diseases; in other words, whether certain phases of genius and high quality are likely to be indissolubly connected with the manifestations of mental disease. The report cites a long list of abnormal and even psychopathic personalities of great importance in the history of the world, and it can be definitely stated that had certain of their psychopathic ancestors been sterilized, the world would be definitely poorer in genius. Moreover, clinical experience and statistics on the matter definitely indicate that at least in the case of manic-depressive psychosis a certain hypomania is often associated with great success and a warmth of character quite definitely valuable to society. Even in the case of the feebleminded, who do not in any way tend to produce superior personalities, there are many individuals who

are docile, industrious and useful, and in a society organized on the master-servant relationship, invaluable as servants of society.

The recommendations of the committee are here given *in extenso* from the report:

This committee has studied the principal literature of the world on the subject which was assigned to it by the Association. In many respects the survey has been disappointing in that it appears that not much scientifically valid work has been done on the subject of inheritance of the diseases and conditions which have been considered. This might have been anticipated for neither psychiatry nor human genetics approach at present the status of exact sciences. It appears that most of the legislation which has been enacted so far is based more upon a desire to elevate the human race than upon proven facts.

We believe that certain definite, though in a sense negative, recommendations should first be made.

First: Our knowledge of human genetics has not the precision nor amplitude which would warrant the sterilization of people *who themselves are normal* in order to prevent the appearance, in their descendants, of manic-depressive psychosis, dementia præcox, feeblemindedness, epilepsy, criminal conduct or any of the conditions which we have had under consideration. An exception may exist in the case of normal parents of one or more children suffering from certain familial diseases, such as Tay-Sachs amaurotic idiocy.

Second: Particularly do we wish to emphasize that there is at present no sound scientific basis for sterilization on account of immorality or character defect. Human conduct and character are matters of too complex a nature, too interwoven with social conditions, such as traditions, economics, education, training, opportunity and even prejudice, especially when these factors operate in the earlier years of life, to permit any definite conclusions to be drawn concerning the part which heredity plays in their genesis. Until and unless heredity can be shown to have an overwhelming importance in the causation of dangerous anti-social behavior, sterilization merely on the basis of conduct must continue to be regarded as a "cruel and unusual punishment."

Third: Nothing in the acceptance of heredity as a factor in the genesis of any condition considered by this report excludes the environmental agencies of life as equally potent and, in many instances, as even more effective. That scientific day is passed when the germplasm and the environment are to be considered as separate agencies or as opposing forces. Both operate in the production of any character, though in different degrees, but the degree in which each operates is, at present, mostly in the country of the unknown. Neurology and psychiatry still have as their duty the laborious task of discovering pathology, pathogenesis and therapeutics even for those conditions in which heredity undoubtedly plays a rôle. Thus modern research has uncovered the fact that diabetes has a constitutional heredity basis. Yet the establishment of its relationship to the pancreas and the introduction of insulin are, none the less, triumphs of medicine.

We present the following recommendations concerning sterilization to the Association for its consideration:

1. Any law concerning sterilization passed in the United States under the present state of knowledge should be voluntary and regulatory rather than compulsory. The present survey clearly shows that the compulsory features of the laws which have been passed in this country have, with rare exceptions, remained unused. Either the custom of obtaining the consent of the patient has become established, or the law has remained practically unenforced.

2. Any law concerning sterilization should be applicable not only to patients in state institutions but also to those in private institutions and those at large in the community. We see no reason for group or class discrimination.

3. The essential machinery for administering any law in regard to sterilization should be one or several boards composed chiefly of persons who have had especial training and experience in the problems involved, which should study each case on its individual merits, and should strongly urge, suggest, or recommend against, sterilization according to its findings. Cases could be brought before such a board by superintendents of institutions, private physicians, parents or guardians, or by the patients themselves. This arrangement would promote elasticity in the application of the law, and permit the utilization of future advances in knowledge.

4. Adequate legal protection for the members of such a board, and for the surgeons carrying out the recommendations, should be secured by statute.

Your committee feels, in short, that it can only recommend sterilization in selected cases of certain diseases and with the consent of the patient or those responsible for him. We recommend that such selective sterilization be considered in cases of the following diseases (arranged roughly in the order in which sterilization would appear to be indicated):

(1) Huntington's chorea, hereditary optic atrophy, familial cases of Friedreich's ataxia, and certain other disabling degenerative diseases recognized to be hereditary.

(2) Feeblemindedness of familial type.

(3) Dementia præcox (schizophrenia).

(4) Manic-depressive psychosis.

(5) Epilepsy.

Each of these categories carries its own special implications:

(1) Definitely hereditary and familial neurologic conditions are rare, but the indications for sterilization are usually obvious to the physician and should be so to the patient. The services of an expert board should be of value in doubtful cases.

(2) There need be no hesitation in recommending sterilization in the case of feeblemindedness, though it need not, of course, be urged in the case of those conditions which are definitely of environmental origin. Though we hesitate to stress any purely social necessity for sterilization, it is obvious that in the case of the feebleminded there may be a social as well as a biological situation of importance. Certain of the feebleminded can only, under the most favorable circumstances, care for themselves, and a family of children

may prove an overwhelming burden. However, in a world which has much low grade work to be done, there is still room for the people of low grade mentality of good character.

(3) Dementia præcox will need, we believe, but little attention from the surgeon. Most cases which are recognized in time to prevent procreation spend their days in hospitals. Moreover, the sexual urge in dementia præcox is low and the marriage and birth-rate correspondingly low. Those who come in contact with cases in the community or prior to their discharge from a hospital need not, however, in most cases hesitate to recommend sterilization since desirable qualities of other kinds are only incidental to dementia præcox and not part of its make-up.

(4) The problem of the manic-depressive psychoses presents complications which will tax the judgment of the wisest board, and it must be met with conservatism and caution. The cyclothymic temperament is frequently the source of the highest achievement and ability of which mankind can boast. Decision in any case must take into account the total assets of the individual character as well as the liabilities incident to the psychosis.

(5) The inclusion of epilepsy, in most instances, is mainly on the ground of the social situation rather than on its biology. If the epileptic attacks from which the individual suffers are infrequent and if the qualities of the personality are intact, we see no reason in our present knowledge for any urgency for recommending sterilization. If the contrary holds true, then sterilization is desirable.

Further Research.

The committee believes that its most important recommendations are those looking toward a concerted, coordinated and planned long-time research. It is obvious to us that investigation of the problem of inheritance, especially of the psychiatric conditions, has been haphazard and often inexact. This is no criticism of the able men who have devotedly studied these most difficult problems and it well may be that no complete scientific approach is possible in the present state of our knowledge or rather of our ignorance, but it is time that a prolonged research be undertaken in which psychiatrists, statisticians and geneticists will collaborate.

The obvious defects in the researches of the past may be summarized as follows:

(1) Control studies of the incidence of these diseases in the community are on the whole lacking. There is almost no knowledge of what may be called the psychiatric constitution of the community. Small samples have been studied here and there and mainly through the history and questionnaire method. Large samples of the population should be studied with personal contacts as the basis of the research. At least ten years of organized effort would be necessary to obtain a background of facts essential for the proper evaluation of all work on the heredity of psychopathological conditions.

(2) The studies which have been conducted as to the incidence of disease in the families where ascendants, siblings or descendants of the patients in

the hospitals have practically all depended upon the history method. Any experienced neurologist or psychiatrist knows how deplorably inadequate such a technique is, how replete with errors of omission and commission. It should be recognized that at least the immediate relatives of the patient admitted for the first time to any institution should be examined by an expert. This is especially urgent in the case of the feebleminded, but the necessity for the collection of dependable data in other conditions is apparent. Any statistical analysis is no better than the data upon which it works; one cannot make good sausage out of pork, old clothes and sawdust, no matter how good the mill.

(3) The coincidence of conditions, perhaps wholly unrelated, has too often been given significance in the studies which have directed the thinking in eugenics and psychiatry. To weigh the importance of the fact that a dementia præcox patient has an alcoholic ancestor, it is first of all necessary to know how the descendants of alcoholics, as a whole, compare with the descendants of non-alcoholics; and also whether the incidence of dementia præcox in these descendants is greater than that of the general population. So with other factors which prejudice or tradition may believe to be important as etiological either as a hereditary or blastophoric factor.

Your committee, therefore, recommends that a permanent committee be appointed which shall take steps necessary for the organization of research in these directions. It may be necessary to interest a foundation for the adequate financial support of a research lasting a decade at least. At present, it may be possible to interest the government in this research as an E. R. A. project. In the opinion of the present committee, some state which is well organized psychiatrically and socially, and which has a stable population should be the scene of operations. A central group headed by a full-time director should determine, after due study, the technique of research, this being the first and all-important step. Certain hospitals might be selected to study the mental diseases, feeblemindedness and epilepsy through the operations of a genetic group stationed therein. Arrangements could be made for the study of samples of the total population through schools, universities, factories and such other institutions and social aggregations as may be decided upon.

We wish to emphasize that to the conventional psychiatric approach to the study of individuals there be added such techniques as are at hand for the detection of inferior physical and mental types. An example of such a technique is that of William W. Graves, who, in his search for characters which remain constant throughout life, has selected the scapula and has observed important correlations of the various types of this bone with the longevity and the general social adaptability of the persons studied.

With psychiatrists, psychologists, geneticists and statisticians working together in a planned way, aided by the appropriate number of social workers and clerical assistants, the various problems relating to inheritance of neurological and psychiatric diseases might be clarified and the resultant knowledge become the basis of more appropriate action than is possible at the present time.

The committee wishes to stress the fact which the diligent reader of the report will have noted; to wit, that marriage in large measure is a selective agency operating in a eugenic way. The barriers of marriage against unwise procreation might well be strengthened by appropriate and early legislation.

Furthermore, it is to be emphasized that no great or radical change in the complexion of society can be expected from any such sterilization program as we recommend, nor from any justifiable legislation. We do not believe that society needs to hurry into a program based on fear and propaganda. Although the problem of mental disease and defectiveness is enormous, there is no new social or biological emergency.

For the bibliography see the report.*

* The members of the American Neurological Association Committee for the investigation of sterilization are: Abraham Myerson, M. D., *Chairman;* James B. Ayer, M. D., Tracy J. Putnam, M. D.; Clyde E. Keeler, Sc. D.; *Consultant in Genetics;* Leo Alexander, M. D., *Research Associate.*

MENTAL DISEASE AMONG FOREIGN-BORN WHITES, WITH SPECIAL REFERENCE TO NATIVES OF RUSSIA AND POLAND.

By BENJAMIN MALZBERG, Ph. D.,
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If one considers the prevalence of mental diseases among the several nativity groups in New York State, it will be observed that natives have lower rates than the foreign-born, and that natives of native parentage have the lowest rates among any of the broad nativity groups. The highest rates are found among the foreign-born population. The second generation of foreign stock (that is, native-born of foreign or mixed parentage) has rates of mental disease intermediate between those of natives of native parentage and the foreign-born. The most important factor in producing these differences is age selection, and when the latter is compensated for by the use of standardized rates of first admissions, the differences between natives and foreign-born are reduced materially, though natives, nevertheless, continue to have lower rates than the foreign stock. In view of the known relation of mental disease to degree of urbanization, and the probable correlation with economic and occupational status, it was suggested by the writer [1] that further statistical adjustments should reduce the disparity in rates to a degree which might be easily accounted for on the basis of environmental differentials.

This view is in direct contradiction with the opinions of some writers on eugenics to the effect that differences in the rates of mental diseases in racial and nativity groups are measures of inherent biological worth. This view was advanced primarily by Dr. Harry H. Laughlin of the Eugenics Record office, in the report of a hearing before the Committee on Immigration and Naturalization of the House of Representatives. The following quotations set forth Dr. Laughlin's point of view: " In these studies I have sought to find out the absolute and the relative measure of each of the several types of social inadequacy in each of the several alien and other nativity groups in the population of the United States. It

is thus a study in comparative degeneracy." [2] And again: "After making due allowances for the major factors which should be considered in the interpretation of these statistics, the logical conclusion is that the differences in institutional ratios, by races and nativity groups, found by these studies represent real differences in social values, which represent, in turn, real differences in the inborn values of the family stocks from which the particular inmates have sprung. These degeneracies and hereditary handicaps are in the blood." [3] In accordance with this point of view Dr. Laughlin drew the following conclusions: "In the United States the foreign-born show an incidence of insanity in the state and federal hospitals 2.85 times greater than that shown by the whole population, which latter are descended largely from older American stock. Making all allowances for any possible shock or strain on personality, due to immigration and the shifting of homes and social conditions, and to differential occupations and economic prosperity, this high incidence shows that the immigrants of the present generation have a higher incidence of mental instability than is possessed by our foundation families." [4] Also, ... "So far as absence of degeneracy in stock can be judged by the absence, in particular nativity groups, from state custodial and residential institutions, the best—that is the least degenerate—immigrant stock was that which came to the United States two or more generations ago . . . . and is now represented by the native born white, both parents native born. The next best is that which came a generation ago . . . . and is now represented by the native born white, both parents foreign-born. The next best is the stock which came here a generation and a half ago . . . . and married native born mates. As a whole the foreign-born . . . . rank lowest in quality, or highest in rate of incidence of social inadequates." [5]

These conclusions, if true, would be exceedingly significant from a purely scientific viewpoint, even if they had no practical bearings upon immigration policies. Dr. Laughlin's study has therefore received meticulous attention from other investigators, and the general conclusion seems to prevail that his methodology was seriously inadequate. The present writer has elsewhere discussed the methodology in great detail,[6] so that there is no need to repeat the criticism at length. Suffice to say, that Dr. Laughlin's material was defective for the purpose of racial analysis, principally be-

cause of the manner of the selection of the original material, and because of the failure to account adequately for age differences. Passing to his immediate conclusions, we can see to what extraordinary results they lead. Native whites of native white parentage who should have the lowest rate of insanity, filled their expected quota by 73.27 per cent. Japanese, however, had a ratio of only 42.85 per cent, and the American negroes a ratio of only 57.23 per cent. Chinese had a ratio of 78.33 per cent, which did not differ significantly from that of the native group.[7] Now it is known that negroes have rates of mental disease far greater than those of the whites.[8] And statistics of first admissions among Japanese and Chinese in New York and Massachusetts indicate clearly that the latter also have higher rates of mental disease than native whites.[9] It is evident therefore that there was something radically wrong with the index employed by Dr. Laughlin. Such discordant results with respect to phenomena which are well-known must cast doubt upon others which are not so well-known.

Furthermore, conclusions as to the biological aspects of mental disease do not flow directly from statistics. They are inferences and interpretations. Races differ from each other with respect to important environmental characteristics, and on the face of it, it is just as permissible to infer that differences in rates of mental disease are measures of environmental influences, as of racial stock. To determine which is the correct view would necessitate a far more detailed analysis than that undertaken by Dr. Laughlin. It seems to the present writer that eugenicists show a tendency to confuse inheritance within family lines with racial inheritance. There is little doubt of the reality of the former, at least with respect to the inheritance of manic-depressive psychoses and dementia præcox.[10] But such defective lines may and do exist in all racial groups. I am, however, unaware of the existence of any data which show the relative frequency of such defective families in different racial groups.

If race were the dominant factor in the prevalence of mental disease, then one ought to find, generally, the same incidence in successive generations of the same stock. For example, the native-born of English stock should not differ significantly from the parental generation, or, similarly, natives of Italian parentage should

not differ from foreign-born Italians. Yet it has been shown conclusively, that the native groups of each stock have markedly lower rates of mental disease than foreign groups of the same stock.[11] Since race is presumably constant, the differences must be due to environmental factors. Furthermore, if the foreign white groups in New York State are, as is usually done, combined into those from northwest Europe and those from eastern and southern Europe, it will be found that there are no constant differences between the two groups with respect to rates of mental disease. In both, there are populations with high rates, and others, with low rates.[12] In view of such variations within each large aggregate, it seems more reasonable to search for the causes of such differences in easily ascertainable social factors, than to postulate hypothetical racial diatheses.

Attempts have often been made to set up invidious comparisons between representatives of the older and newer immigration to the United States. In an effort to at least place the comparisons on a basis of solid facts, the writer analyzed the statistics of mental disease among five population aggregates in the State of New York. These included foreigners born in Italy, Germany, Ireland, England and the Scandinavian countries. These groups were selected because they represent fairly homogeneous population units, so far as these may be ascertained today. Many significant differences were found, none of which support the thesis of the inferiority of the newer immigration. The highest rates occurred among the Irish and Scandinavians. Italians had rates on a par with those of the English and Germans. More remarkable results have been found, however, for two large population aggregates not included in the preceding study, namely foreigners born in Russia and Poland. These were omitted from the earlier study, in order that the latter might deal with populations of a high degree of homogeneity.

In the following sections we shall analyze rates of mental disease among Russians and Poles, in order to contrast the latter with other foreign groups and with native whites of native parentage. Exclusive of Italians, these two groups constitute the largest foreign-born populations in New York State.

Russia.

There were 481,306 individuals in New York State on April 1, 1930, who were born in Russia, and they constituted 14.8 per cent of the total foreign-born population. This represented a marked drop since 1920, when the corresponding percentage was 19.0. Part of the decrease may be attributed to territorial and boundary changes following the World War. The year 1920 probably will mark the maximum total for this group. In 1900 foreign-born Russians (including Lithuanians) represented 8.7 per cent of the foreign population of New York State. The percentage increased to 17.2 in 1910. As indicated previously, the percentage increased in 1920, but decreased in 1930.

Russians, as defined above, do not constitute a racial group. If we consider as Russian, those who reported Russian as their mother tongue to the U. S. Census Bureau in 1930, then the latter totaled only 99,358, or 20.6 per cent of the original total described as Russian. By far the largest group consisted of Jews, who numbered 367,210, or 76.3 per cent.[13] This is a fact of great significance, as it will explain the distribution and incidence of the psychoses among this group of foreign-born.

Foreign-born white Russians contributed 1157 first admissions to all institutions for mental disease in New York State during 1929-1931, of whom 567, or 49.0 per cent, were males, and 590, or 51.0 per cent, females. The average annual rate of first admissions was 80.1 per 100,000 population. Males and females had rates of 75.9 and 84.6, respectively. The higher rate among females is significant, as in all other groups the male rate exceeds the female rate. The result among Russians is undoubtedly due to the presence of the foreign Jewish population, for it has been shown elsewhere that the foreign-born Jewish females have a rate in excess of that of foreign-born Jewish males.[14]

The distribution of the psychoses among the Russians is shown in Table 1.

The outstanding group was that of dementia præcox, which included 30.9 per cent of the total first admissions, and provided an average annual rate of first admissions of 24.7 per 100,000 population. The manic-depressive group followed with a percentage of 17.3 and a rate of 13.9. Psychoses with cerebral arteriosclerosis ranked third with 11.8 per cent, and a rate of 9.4. The high per-

TABLE 1.

FIRST ADMISSIONS TO ALL HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, 1929-1931, AMONG THE FOREIGN WHITES BORN IN RUSSIA.

Psychoses.	Number of first admissions.			Per cent of total first admissions.			Average annual rate per 100,000 population born in Russia.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Traumatic	13	6	19	2.3	1.0	1.6	1.7	0.9	1.3
Senile	18	62	80	3.2	10.5	6.9	2.4	8.9	5.5
With cerebral arteriosclerosis	65	71	136	11.5	12.0	11.8	8.7	10.2	9.4
General paresis	84	24	108	14.8	4.1	9.3	11.2	3.4	7.5
With cerebral syphilis	8	4	12	1.4	0.7	1.0	1.1	0.6	0.8
With other brain or nervous diseases	9	9	18	1.6	1.5	1.6	1.2	1.3	1.3
Alcoholic	31	1	32	5.5	0.2	2.8	4.2	0.1	2.2
With other somatic diseases	8	15	23	1.4	2.5	2.0	1.1	2.2	1.6
Manic-depressive	71	129	200	12.5	21.9	17.3	9.5	18.5	13.9
Involution melancholia	15	25	40	2.7	4.2	3.5	2.0	3.6	2.8
Dementia præcox	177	180	357	31.2	30.5	30.9	23.7	25.8	24.7
Paranoia or paranoic conditions	3	8	11	0.5	1.4	1.0	0.4	1.1	0.8
Epileptic psychoses	9	7	16	1.6	1.2	1.4	1.2	1.0	1.1
Psychoneuroses and neuroses	7	11	18	1.2	1.9	1.6	0.9	1.6	1.2
With psychopathic personality	16	10	26	2.8	1.7	2.2	2.1	1.4	1.8
With mental deficiency	16	15	31	2.8	2.5	2.7	2.1	2.2	2.1
All other psychoses	2	2	4	0.4	0.3	0.3	0.3	0.3	0.3
Undiagnosed psychoses	11	9	20	1.9	1.5	1.7	1.5	1.3	1.4
Without psychosis	4	2	6	0.7	0.3	0.5	0.5	0.3	0.4
Total	567	590	1157	100.0	100.0	100.0	75.9	84.6	80.1

centage of dementia præcox is undoubtedly to be attributed to the Jewish element in the Russian population.

Sex differences may be noted as follows: In the senile and manic-depressive groups, the female percentages and rates were greatly in excess of those of the males. In general paresis and in the alcoholic psychoses the males were in marked excess.

In Table 2 we find comparisons between the Russian group and native whites of native parentage on comparable age bases.

Russians had a standardized rate of first admissions for all psychoses of 87.1 per 100,000 population, compared with a rate of 75.2 in the native group, the former being in excess in the ratio of 1.2 to 1. The excess was due primarily to the relatively high rate of 85.7 among Russian females in comparison with that of the native females. Russian males had a rate of 86.6 compared with 83.7 among the native group, the difference being less than its probable error. It is significant that in four of the individual groups of psychoses Russian males had lower rates than native males. In the manic-depressive psychoses and dementia præcox, the Russian males had higher rates than native males, though the difference with respect to the former is not significant. Among females, the Russian group had lower rates of general paresis and alcoholic psychoses, the latter difference being statistically significant. Russian females, however, had significantly higher rates in the senile psychoses, manic-depressive psychoses and dementia præcox.

Since natives of native parentage may be expected to have lower rates than the foreign-born, the preceding comparisons are not entirely adequate. It is more proper to compare the rates of the Russians with those for all foreign-born in New York State. The latter had a standardized rate of 108.8, compared with a rate of 87.1 among Russians. The only comparable rate was that for natives of Poland. Natives of Italy, Germany, Ireland, Canada, England, Austria, Scandinavia, and Hungary all had higher rates.[15] In connection with the senile psychoses, all foreign-born had a standardized rate of 32.2, compared with 24.1 among Russians. Of the nine other numerically largest groups of foreign-born in New York State, only Poland and Hungary had lower rates. All foreign whites had a standardized rate of 46.0 for psychoses with cerebral arteriosclerosis, compared with 29.4 among Russians.

TABLE 2.

AVERAGE ANNUAL STANDARDIZED RATES OF FIRST ADMISSIONS TO ALL HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, 1929-1931, AMONG NATIVE WHITES OF NATIVE PARENTAGE AND FOREIGN WHITES BORN IN RUSSIA.

Psychoses.	Native whites of native parentage.			Foreign-born Russians.			Ratio of rate of first admissions among foreign-born Russians to that of native whites of native parentage.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Senile *	16.6 ± 1.3	16.0 ± 1.3	17.7 ± 0.9	10.9 ± 2.2	31.8 ± 4.1	24.1 ± 2.4	0.7	2.0	1.4
With cerebral arteriosclerosis *.	36.2 ± 1.9	22.6 ± 1.5	30.1 ± 1.2	27.4 ± 3.6	29.7 ± 4.0	29.4 ± 2.7	0.8	1.3	1.0
General paresis †	11.5 ± 0.6	3.8 ± 0.3	7.6 ± 0.3	8.6 ± 1.3	3.1 ± 0.8	5.8 ± 0.7	0.7	0.8	0.8
Alcoholic ‡	7.7 ± 0.6	1.5 ± 0.2	4.6 ± 0.3	4.2 ± 0.9	0.2 ± 0.2	2.2 ± 0.5	0.5	0.1	0.5
Manic-depressive †	9.8 ± 0.5	12.6 ± 0.6	11.1 ± 0.4	11.4 ± 1.4	19.0 ± 1.9	15.1 ± 1.2	1.2	1.5	1.4
Dementia præcox †	18.7 ± 0.8	15.3 ± 0.7	16.9 ± 0.5	33.9 ± 2.5	25.8 ± 2.3	29.7 ± 1.7	1.8	1.7	1.8
All psychoses †	83.7 ± 1.6	66.3 ± 1.4	75.2 ± 1.1	86.6 ± 4.0	85.7 ± 4.1	87.1 ± 2.9	1.0	1.3	1.2

* Population of New York State aged 45 years and over on April 1, 1930, used as standard.
† Population of New York State aged 15 years and over on April 1, 1930, used as standard.
‡ Population of New York State aged 25 years and over on April 1, 1930, used as standard.

Only Poles had a lower rate. In connection with general paresis, Russians had a standardized rate of 5.8, compared with a rate of 9.8 among all white foreign-born. Again only the Poles had a lower rate. The standardized rate of first admissions with alcoholic psychoses was 6.7 among all foreign whites, and only 2.2 among Russians, the lowest among the foreign groups. In connection with manic-depressive psychoses the Russian rate (15.1) was only slightly below that for all foreign-born (15.8), but it was exceeded by that for Germany, Ireland, Austria, Scandinavia and Hungary. In connection with dementia præcox Russians had a standardized rate of 29.7, compared with an average of 32.8 for all foreign-born whites. Only Canadians and English had lower rates.

It is therefore clear that, when contrasted with comparable groups of foreign-born, Russians had rates far below the average, and considerably less than the rates for groups from northwestern Europe. As those born in Russia consist, according to the U. S. Bureau of the Census, primarily of Jews, who constitute 76.3 per cent of the total, the results are testimony to the low prevalence of mental diseases among Jews.

Poland.

The Polish group totaled 350,383 on April 1, 1930, representing 10.7 per cent of all the foreign-born in New York State. This group has grown steadily since 1900, in which year it represented 3.7 per cent of the total foreign population. In 1910 and 1920 Poles represented 6.1 and 8.8 per cent, respectively. It is entirely probable, however, that the year 1930 will mark the maximum size of the Polish-born group, in view of the new immigration laws of the United States.

As in the case of the Russians, the Poles do not constitute a racially homogeneous group. Of the 350,383 born in Poland, only 179,415, or 51.2 per cent, reported Polish as their mother tongue, and were therefore presumably Poles. Jews totaled 146,836, or 41.9 per cent.[17] The latter total is high enough to affect the characteristics of the group as a whole.

As Poland was not restored to the status of an independent nation until after the World War, it might seem that many people born in what was formerly Austrian, Russian or German-Poland,

may have reported their nativity as Austrian, Russian or German. The U. S. Bureau of the Census states, however, that "although Poland was not restored to its original status as an independent country until the end of the World War, its historical position was such that Polish immigrants generally returned Poland as their country of birth regardless of the political sovereignty over their birthplace."[16] We may feel assurance therefore in using the totals for Polish nativity in the computation of rates of first admissions.

Those born in Poland contributed 925 first admissions to all institutions for mental disease in New York State during 1929-1931, of whom 520, or 56.2 per cent, were males, and 405, or 43.8 per cent, females. The average annual rate of first admissions was 88.0. Males and females had rates of 95.7 and 79.8, respectively.

The distribution of the psychoses among those of Polish nativity is given in Table 3.

Dementia præcox included more than one-third of all the first admissions and provided an average annual rate of 33.2 per 100,000 population. The manic-depressive psychoses followed with 14.0 per cent, and a rate of 12.3. The alcoholic psychoses were third with 11.3 per cent and a rate of 9.9. As it is well known that alcoholic psychoses are very rare among Jews,[14] it follows that the rate among the other groups deriving from Poland (mostly Poles) must be very high. This is also true of general paresis, which ranks relatively high among the Polish-born group, despite the fact that the disease is rare among foreign Jews.[14]

There were the usual sex differences, the most noteworthy appearing in connection with the alcoholic psychoses, in which group the males had a rate exceeded only by that for dementia præcox.

Comparisons with the native population of native parentage, based upon standardized rates are shown in Table 4.

For all psychoses combined, the Polish group had a standardized rate of 86.3, compared with a rate of 75.2 among the native group. Among males the rates were 93.6 and 83.7 for Poles and natives, respectively. The females had corresponding rates of 78.6 and 66.3, respectively. The probable errors of the differences are large, but previous studies indicate that the differences may be interpreted as significant. Males born in Poland had lower rates than natives in connection with the senile psychoses, psychoses with cerebral

TABLE 3.

FIRST ADMISSIONS TO ALL HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, 1929-1931, AMONG THE FOREIGN WHITES BORN IN POLAND.

Psychoses.	Number of first admissions.			Per cent of total first admissions.			Average annual rate per 100,000 population born in Poland.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Traumatic	14	...	14	2.7	....	1.5	2.6	....	1.3
Senile	6	30	36	1.2	7.4	3.9	1.1	5.9	3.4
With cerebral arteriosclerosis	41	29	70	7.9	7.2	7.6	7.5	5.7	6.7
General paresis	51	15	66	9.8	3.7	7.1	9.4	3.0	6.3
With cerebral syphilis	5	1	6	1.0	0.3	0.7	0.9	0.2	0.6
With other brain or nervous diseases	12	2	14	2.3	0.5	1.5	2.2	0.4	1.3
Alcoholic	88	16	104	16.9	4.0	11.3	16.2	3.2	9.9
With other somatic diseases	10	8	18	1.9	2.0	1.9	1.8	1.6	1.7
Manic-depressive	41	88	129	7.9	21.7	14.0	7.6	17.3	12.3
Involution melancholia	10	10	20	1.9	2.4	2.2	1.8	2.0	1.9
Dementia præcox	182	167	349	35.0	41.2	37.7	33.5	32.9	33.2
Paranoia or paranoic conditions	3	2	5	0.6	0.5	0.5	0.6	0.4	0.5
Epileptic psychoses	9	5	14	1.7	1.2	1.5	1.7	1.0	1.3
Psychoneuroses and neuroses	8	7	15	1.5	1.7	1.6	1.4	1.4	1.4
With psychopathic personality	14	8	22	2.7	2.0	2.4	2.6	1.6	2.1
With mental deficiency	10	6	16	1.9	1.4	1.7	1.8	1.2	1.5
All other psychoses	2	...	2	0.4	....	0.2	0.4	....	0.2
Undiagnosed psychoses	10	10	20	1.9	2.4	2.2	1.8	2.0	1.9
Without psychosis	4	1	5	0.8	0.3	0.5	0.7	0.2	0.5
Total	520	405	925	100.0	100.0	100.0	95.7	79.8	88.0

TABLE 4.

AVERAGE ANNUAL STANDARDIZED RATES OF FIRST ADMISSIONS TO ALL HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, 1929-1931, AMONG NATIVE WHITES OF NATIVE PARENTAGE AND FOREIGN WHITES BORN IN POLAND.

Psychoses.	Native whites of native parentage.			Foreign-born Poles.			Ratio of rate of first admissions among foreign-born Poles to that of native whites of native parentage.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Senile *	16.6 ± 1.3	16.0 ± 1.3	17.7 ± 0.9	3.8 ± 1.6	24.1 ± 3.9	15.7 ± 2.4	0.2	1.5	0.9
With cerebral arteriosclerosis *.	36.2 ± 1.9	22.6 ± 1.5	30.1 ± 1.2	22.9 ± 3.8	16.1 ± 3.2	19.9 ± 2.7	0.6	0.7	0.7
General paresis †	11.5 ± 0.6	3.8 ± 0.3	7.6 ± 0.3	7.3 ± 1.4	2.7 ± 0.8	4.9 ± 0.8	0.6	0.7	0.6
Alcoholic ‡	7.7 ± 0.6	1.5 ± 0.2	4.6 ± 0.3	15.2 ± 2.1	3.2 ± 0.9	9.2 ± 1.2	2.0	2.1	2.0
Manic-depressive †	9.8 ± 0.5	12.6 ± 0.6	11.1 ± 0.4	8.6 ± 1.5	17.0 ± 2.2	12.7 ± 1.3	0.9	1.3	1.1
Dementia præcox †	18.7 ± 0.8	15.3 ± 0.7	16.9 ± 0.5	39.6 ± 3.2	31.7 ± 2.9	35.4 ± 2.2	2.1	2.1	2.1
All psychoses †	83.7 ± 1.6	66.3 ± 1.4	75.2 ± 1.1	93.6 ± 4.9	78.6 ± 4.6	86.3 ± 3.4	1.1	1.2	1.1

* Population of New York State aged 45 years and over on April 1, 1930, used as standard.
† Population of New York State aged 15 years and over on April 1, 1930, used as standard.
‡ Population of New York State aged 25 years and over on April 1, 1930, used as standard.

arteriosclerosis, general paresis and manic-depressive psychoses. (The low standardized rate for general paresis is of interest compared with the high crude rate, and shows how unfavorable age differences may mask true differences.) Polish males, however, were markedly in excess in the alcoholic psychoses and dementia præcox. Among females, the Polish group had lower standardized rates with psychoses with cerebral arteriosclerosis and general paresis. They were markedly in excess in the alcoholic psychoses and dementia præcox. In view of the large probable errors, the latter difference only can be considered significant, however.

The standardized rates for those of Polish nativity may be compared with those for all foreign-born whites. Considering all psychoses combined, the white foreign-born in New York State had a rate of 108.8 compared with a rate of only 86.3 among Poles. The latter rate was the lowest among the 10 leading foreign-born groups in New York State. In the senile psychoses Poles had a rate of 15.7 compared with an average of 32.2, the former being the minimum for the 10 groups. Similarly in connection with psychoses with cerebral arteriosclerosis, Poles had the minimum rate of 19.9, compared with an average of 46.0. In general paresis Poles had a minimum rate of 4.9, compared with an average of 9.8. In the alcoholic psychoses, however, Poles had a rate of 9.2, compared with an average of 6.7. Only the Irish had a higher rate. In the manic-depressive psychoses Poles had a rate of 12.7, compared with an average of 15.8. Only Canadians had a lower rate. In dementia præcox, however, Poles had a rate of 35.4, compared with an average of 32.8. Only Austrians and Hungarians had higher rates.

The evidence is clear, therefore, that natives of Russia and Poland had lower rates of mental disease than the other leading foreign-born groups, and that they even compared not too unfavorably with natives of native parentage. Their rates of mental disease were decidedly lower than those for natives of northwest Europe. This strengthens the conclusions drawn from preceding studies that the invidious comparisons of the immigrant populations from a biological point of view are unjustified. If some eastern European immigrants have lower rates of mental disease than immigrants from northwest Europe, it is also true that Austrians and Hungarians have rates above the average. If some of the north-

west European populations have moderate rates of mental disease, others such as the Irish and the Scandinavians have the highest. Within each of these broad aggregates of population there evidently are some groups with high rates, and others with low rates. It appears pertinent therefore to concentrate upon the causes of variation within each group, rather than to dispute endlessly over hypothetical racial causes of mental disease.

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ANDROGYNOID CHARACTERISTICS IN A CASE OF SCHIZOPHRENIA.

By ANNETTE C. WASHBURNE, M. D.*

A review of the literature reveals numerous references to hermaphroditism. Krafft-Ebing [1] in his textbook quotes Caspar [2] who regarded hermaphroditism as "congenital and hereditary." Griesinger [3] believed it was chiefly hereditary. Westphal [4] and later Condillac and Binet [5] considered hermaphrodites as "psychopathic types," whereas Ulrichs [6] and Clay [7] thought of them as "anima muliebris in corpori virili inclusa." These theories preceded the observations of Kiernan [8] in 1888 who noted the bisexual organization in the lower animal kingdom and advanced the hypothesis that in certain humans a similar bisexuality represents a functional retrogression toward these lower types. It was likewise felt by them that no relationship existed between hermaphroditism and sex inversion, since the former followed the law of evolution. In 1912 Neugebauer [9] classified hermaphroditism as follows:

I. Hermaphroditism verus—very rare—truly bisexual.
II. Pseudo-hermaphroditism—sex organs of one type associated with those of the opposite type.
   A. Internus Masculine
      Feminine—internal organs opposite.
   B. Externus Masculine.
      Feminine—external organs opposite.

In a review of 900 cases he found that 722 occurred in males and 178 in females; 613 of the total were found to possess external male genitalia and female organs.

Jelliffe and White [10] state: "True hermaphrodites are probably non-existent as far as the male sex is concerned. True cases of ovo-testis are extremely rare. Pseudo-hermaphroditism while unusual is nevertheless not infrequently observed. A great variety of findings is recorded: females with enlarged clitoris, vaginal cul de sac, ovaries, uterus and bilateral testes. In certain patients primary

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and secondary sexual characters correspond; in others, there are male gonads with female hair distribution, pelvis formation, fatty deposits, high voices and enlarged mammæ."

Levy [11] believed that "pseudo-hermaphroditism in the male is most frequently illustrated by a "perineoscrotal hypospadias."

That hermaphroditism is occasionally associated with other conditions is indicated by three cases reported by Martin [12] where supra-renal pathology, hypertension and hypertrichosis accompanied pseudo-hermaphroditism.

Thorex [13] in attempting to further explain the hermaphroditic problem says: "Some assert that man is bisexual and that every normal male and female retains cells of indifferent accessory sex. Therefore, there is no such thing as an individual being one hundred per cent male or one hundred per cent female, each contains elements of the other sex and each adult shows some degree of hermaphroditism."

Differentiated from this group are the eunuchs, who according to Thorex, for "congenital, endocrinal or surgical reasons fail to develop their sexual glands normally." [14] The eunuchs lack, however, the duality of the hermaphrodites who are, he states "in reality sexless, a condition which entails physical, mental, moral, and legal consequences." [15] "In certain instances this bivalent tendency exists largely in the mental sphere, the physical habitus being more or less normal."

In an individual with external female characteristics, a psychic swing toward the masculine is termed gynandrism; conversely a swing toward a feminine personality in a male is termed androgynism.

Androgynoids frequently "indulge in spontaneous phantasy and delusions from which they derive much pleasure." [16] It is characteristic of these individuals to desire to dress in the clothing of the opposite sex (transvestism).

It was thought by Hirschfeld [17] that the delusional field may be created in the male by "an impotency, and serve as an outlet for an inferiority feeling."

There seems no doubt that in a considerable number of androgynoids homosexuality is present. Androgynism according to Hirschfeld [18] may be divided into three types:

1. The hypoplastic—allied with eunuchiodal features such as rudimentary testicles, small penis, high voice, gynecomastia and hypotrichosis.
2. The metaplastic—associated with internal hermaphroditism probably the result of abnormal endocrine function.
3. The activated or true type where no definite changes, either external or internal are found, the pathology being largely mental. These classifications are by no means entirely distinct and considerable overlapping may occur.

The literature reveals many interesting case reports illustrative of the above types. Middleton [19] cites an instance of strongly marked secondary male characteristics with testicular swellings; internal examination, however, revealed a well developed retroverted uterus with a two month's pregnancy. Spitzka [20] recalls the historical case of Lord Cornbury, Governor of New York during the reign of Queen Anne. He was described by his contemporaries as "degraded, hypocritical, immoral and a spendthrift." His greatest pleasure was to dress in women's clothes and the city "frequently saw its governor, the commander of the colonial troops and scion of royal stock (he was cousin to the queen) promenading the walls of the little fort in female attire with all the coquetry of a woman and all the gestures of a courtesan." Kiernan [21] mentions Caligula, Ludwig, and Wagner as examples of allied sexual disorders. Within more recent times the tragic "Autobiography of an Androgyne" and "Female Impersonators" [22] by Lind reveal the personal struggles of one of these unfortunates. Polozker [23] cites the case of a male of 42 with schizophrenic tendencies, a constitutional homosexual. This man was known to have assumed the identity of his wife and sister. The patient dressed as a woman but worked during the day as a man.

The following case is reported because the androgynoid-transvestic features were among the earliest symptoms in a developing schizophrenia and because the patient was under hospital observation for a sufficient period to permit extensive studies, including encephalograph, to be carried out.

R. K. was admitted to the Wisconsin General Hospital on February 16, 1932. The patient was an unmarried white male aged 23, high school graduate at 18, with no present occupation. The family history was negative for any mental or sexual abnormalities. The past medical history

of the patient contained only the following significant data: three years previously (1929) he had experienced during a period of several weeks, frequent headaches occasionally associated with emesis and infrequent blurring of left temporal vision. The only present physical complaints were infrequent attacks of diplopia and a vague history of polydipsia without polyuria.

The family consisted of the father, mother and one sister older by two years.

The parents stated that the patient had not demonstrated any peculiarities of behavior until March 15, 1931. Prior to this he had been "well behaved, and industrious." His school work had been that of an average student and they were unaware of any asocial tendencies. On the specified date the patient had taken his father's car without permission and while driving recklessly had had an accident resulting in minor body bruises but no head trauma. The parents were unable to explain this action which occurred during the day time and was apparently unpremeditated. When questioned by them as to motive the patient stated vaguely he thought "it would be nice to drive the car." He denied that he had planned the episode or that anyone else was involved. He was alone at the time of the collision. Following this he became moody and irritable and was less inclined to mingle socially. In May, 1931, he began stealing his mother's underwear which he took pleasure in putting on. On one occasion he went up town wearing his sister's hat and dress and while there purchased a pair of woman's pajamas and a woman's bathing suit. A few days later he wore the latter to the bathing beach. The enjoyment he received from these excursions resulted in emissions with incomplete erections. Following this and during the summer months he frequently went out in the backyard dressed only in a shirt and would lie about in suggestive attitudes. Attempts on the part of others to dissuade him resulted in violent outbreaks of temper. In September, 1931, he became actively destructive, burning up a waste paper basket and attempting to destroy the living room couch because "It was no good." He sorted out nails of various sizes, threw away useful tools and smashed the door locks all "for nothing—no special reason." In February he was reported by the police for window peeking on a girl who "had never done right by me." Increasing outbursts of rage mainly directed against his mother (striking her and locking her in rooms) precipitated his admission to the hospital.

Physical examination at this time revealed a well-nourished somewhat obese white male 6 ft. 3½ inches in height weighing 204¾ lbs. (Fig. No. 1 and 2.) The head was normal in size, the facies somewhat effeminate. The hair on the head was thick, fine and slightly longer than usual. The facial hair was sparse and the patient stated that he had shaved only once. Axillary hair was scanty and there was none on the trunk or extremities. The pubic hair had been removed by the patient by means of a depilatory but its outline showed a normal male escutcheon. The skin was white and soft. There was moderate but definite enlargement of the breasts and buttocks, the posture was poor and the abdomen protuberant. The external genitalia, testes and prostate were

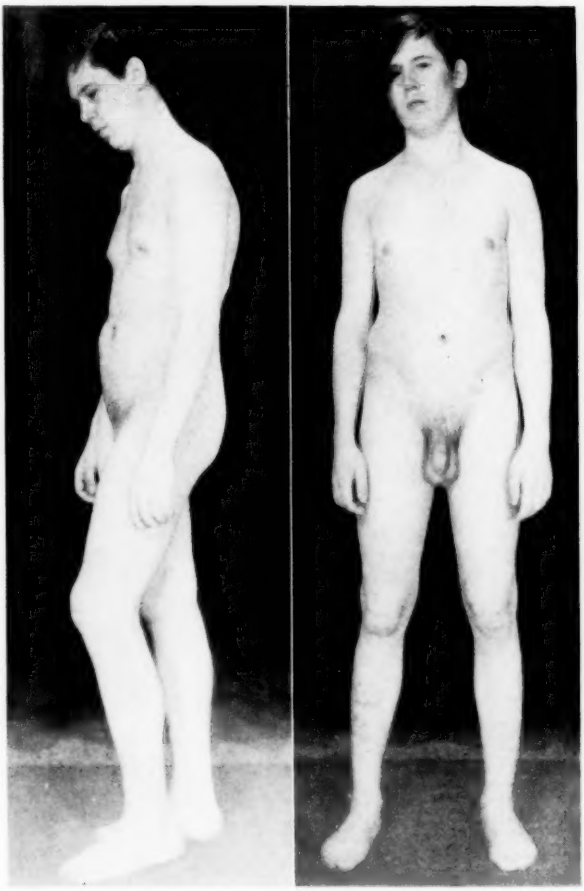


FIG. 1. FIG. 2.

Showing hypotrichosis and feminine type of profile.

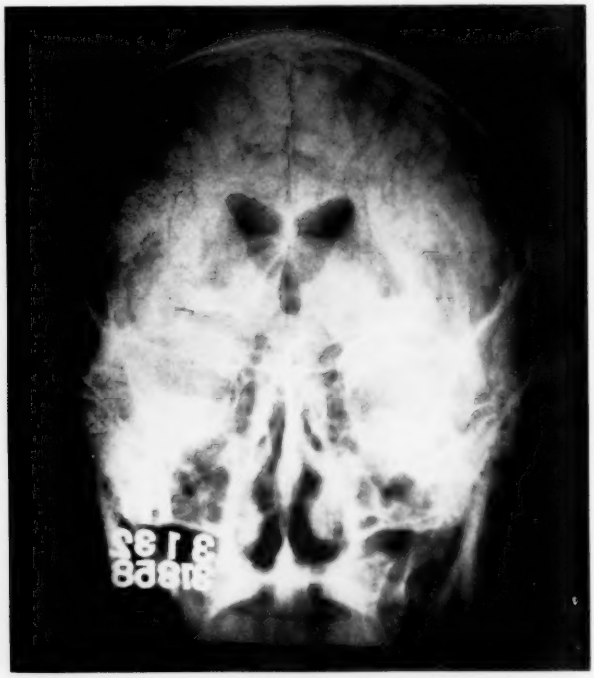


FIG. 3.

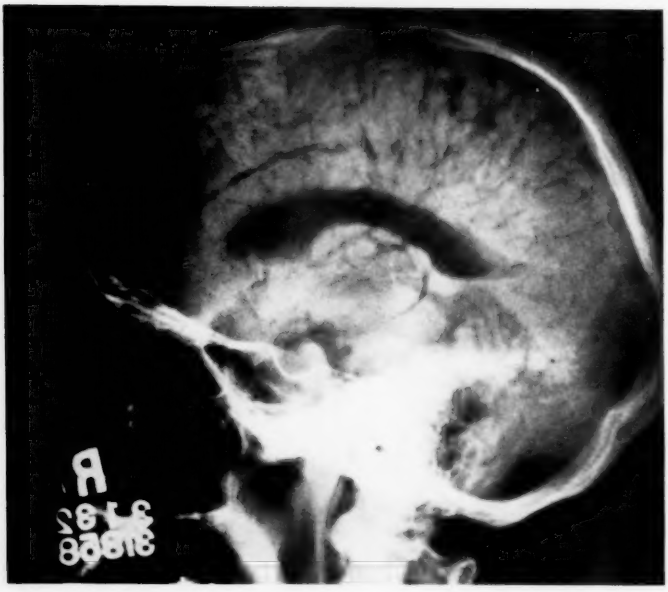


FIG. 4.

A-P and lateral views of skull showing moderate internal hydrocephalus and generalized cortical atrophy.

those of a normal male. The patient stated that he had had only three emissions and no complete erection. The voice was low pitched. The only other physical finding of interest was a blood pressure on admission of 148/100. Repeated checks 142/90—146/96.

The neurological examination including complete eye studies was entirely negative. The laboratory findings of interest were: blood calcium 9.7; basal metabolic rate 0—1; blood Wassermann and spinal fluid findings were negative with normal pressure readings; a glucose sugar tolerance test was normal. Lateral stereo of the skull showed "cranial bones to have a relatively normal appearance, the sella turcica was within normal limits of size and contour with no evidence of erosion. The pineal gland was not calcified."

Attempts to record fluid intake and output were unsuccessful because of lack of cooperation.

A Binet-Simon intelligence test showed a mental age of eleven years and one month giving an intelligence quotient of 69.

An encephalogram was performed—216 cubic centimeters of clear fluid were removed and replaced by 194 cubic centimeters of air. The patient made a rapid and uneventful recovery.

Encephalogram interpretation: moderate internal hydrocephalus and generalized cortical atrophy especially marked in the parietal areas. (Fig. No. 3 and 4.)

The psychiatric notes made at this time read as follows: "The patient demonstrates a marked self-interest. His conversation when undirected concerns only his own activities, powers and the sexual changes that he feels are taking place. The flow of talk is rapid, at times irrelevant and characterized by bizarre flights of fancy and outbursts of foolish laughter. There are distinct paranoid trends, the patient feeling alternately that he is a great prophet, a poet of fame, pursued by a powerful enemy, etc. Emotionally he appears shallow, childish and unstable." The patient was very definite in his idea of a sexual metamorphosis. He was sure his figure had been "shrinking" thought the mammæ and hips were becoming larger and the voice higher. At the time of the automobile accident he felt he had a menstrual period and this confirmed his hopes. (Although closer questioning revealed this to have been an emission the patient clung to his interpretation). He talked freely about his transvestic episodes, taking great pleasure in recounting and enumerating the various feminine garments he had worn. Sexual experiences including masturbation were denied. The patient claimed no interest in the opposite sex and emphatically denied intercourse. He stated that within the past year this lack of interest had become more positive so that now the contemplation of a woman fills him with disgust. Close questioning failed to disclose any homosexual desires—though his attitude toward other male patients was suggestive.

The notes of the nurses and the house staff referring to this attitude are of interest. When first admitted to the hospital he said: "I came around like a lady—my folks don't know it yet." His actions were described as "silly," "foolish" and "mischievous." He annoyed other patients, quarreled with one man and later "attempted to put his arms around him." On one occa-

sion he was observed sitting on his bed and stroking his breasts. In addition to the sexual delusions the patient insisted he had been commanded by God to pick up and hide "the stars of love" as they fell from the heavens. With considerable secrecy he displayed a few nondescript stones as examples.

He had been troubled by the visual hallucination of a man who was grinding a movie camera at him. The face of the man was vaguely familiar and he thought it possible that it might be that of a former school mate whom he considered "a powerful enemy and a murderer." This man was the father of an illegitimate child whom he had "killed and buried." The crime was inspired by a woman; "women are very powerful because of Eve's poor fruit judgment."

Regarding his own future the patient was boastful and certain. He wrote pages of foolish poetry and covered sheets with scrawling designs. His expressions gradually became more bizarre and confused.

At this time the family were notified that commitment to the State Hospital for the Insane was indicated. However, they desired to try him once more at home. The patient was discharged in their care March 15, 1932. He was readmitted June 23, 1932. The mother stated that at first he seemed better but that after a few weeks he began to act strangely, picking up stones from the ground, piling them in corners or hiding them. He also stole chickens from the neighbors and tortured them. Remonstrances resulted in further acts of violence.

The notes at the time of this admission indicated a rapidly progressing schizophrenia. The following conversation obtained under sodium amytal hypnosis is illustrative:

Q. "Are you turning into a woman?"

A. "I don't see anything in that at all. I see no visuality in turning into a woman. When we feel that way we get things a little mixed."

Q. "How about the stones?"

A. "These pieces have told me things—467½ have disappeared—stars—I can't find any trace of them. If it was a whole one God would tell me. There was a lady star, it was the Follies. The editor ran over the star, then there was a sign of a lost star; it belonged to Miss C— (former teacher), God told me I would have septigrams—I do have a star with the apparatus. One looks in the eyes with it (confusion with ophthalmoscopic examination). God told me yesterday I would have sixteen visions in the left publitz, the star calls for a spectrolatum."

Q. "Are you turning into a woman?"

A. "No, I shaved my hair because the stars told me—God told me. I possessed the first and fourth stars for beauty in Roman numerals. The ten commandments were that way—I saw a vision of Christ in the Seventh Heaven. He told me Joe (a friend) blew up the Maine."

Q. "Are you God?"

A. "No, I had no idea I would get this far. Radically I'm happy as the stars are. I've made a mile in a minute—that's a fact—another night I made a hundred yard dash in two minutes flat."

Q. "Why are you so upset at home?"

A. "God told my mother she had a star in the basement—my sister had one in her pocket—formula H_2O_7, that's spring water on the radio I've had 124 septigrams and I'm not through yet."

Q. "Why are you cruel to your mother?"

A. "God tells me—no, I wouldn't kill anyone—I just pinch her because I like her."

Q. "Who stole the chickens?"

A. "God saw a star, my mother gets along up—as I see it that's the trouble. If she had given me three songs different people get theirs and start things in the world for us. Miss C— stole the pigeon—I sold a part for ten cents—that's all forgiven."

It is of interest in this case to trace the androgynoid tendencies which in the beginning were frankly admitted and later denied. It is apparent that the patient possessed considerable admiration for women since they are "very powerful" and that some, at least, of his original paranoid ideas derived their stimulus from the thought that he was gradually becoming one of these favored beings. While possessing an attachment for his mother he nevertheless punishes her ("because I like her") since she represents in actuality what he most desires. He destroys door locks and throws away useful tools and to complete the phallic syndrome attempts to burn up the living room couch. He demonstrates objective evidence of a sexual metamorphosis through transvestic activities. In the hospital his first statement was—"I came around like a lady." His actions plus mannerisms here further supported these impressions. On the second admission when the schizophrenic picture was more definite, there were still evidences of these ideas though the patient denied them; thus his remarks—"there was a *lady* star"—"a sign of a *lost* star"—"I possessed the first and fourth stars for the *beauty* in *Roman* numerals"—"my *mother* had a *star* in the *basement*"—"spring water" etc. indicate the subconscious existence of these delusions. The confusion with stars and the gradual absorption plus identification of the sexual ideas with them are of interest.

In evaluating this case three factors were considered.

1. The schizophrenic reactions, mannerisms, hallucinations and delusions.

2. The ideas of sexual metamorphosis which were especially noticeable at the onset but which gradually subsided as the schizophrenia developed.

3. Evidence of endocrine disturbance suggestive of pituitary pathology.

The patient was committed as a case of schizophrenia to the State Hospital for the Insane at Mendota. When last seen (June, 1934) he seemed to have no recollection of his androgynoid period though his actions and mannerisms were still definitely effeminate. Hair and voice were unchanged and except for an increase in weight (212 lbs.) the body showed no alterations.

SUMMARY.

1. A brief review of some of the outstanding theories on pseudohermaphroditism is given.

2. A case report is submitted illustrating androgynoid characteristics at the onset of a case of schizophrenia.

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THE EFFECT OF ALCOHOL IN CATATONIC SYNDROMES.

Preliminary Report.[1]

By N. V. KANTOROVICH and S. K. CONSTANTINOVICH.

A few years ago Perleman[2] reported some interesting results observed in several cases of schizophrenia with stupor, following administration of small doses of alcohol by the mouth (50-70 c. c. of a 48 per cent solution). The effect apparently was to make the patients more talkative and more accessible.

We have tried similar experiments upon 15 patients with catatonic manifestations, using larger doses, given in some cases by the mouth and in others intravenously. The object of this communication is to describe the technique of the experiments and to submit abstracts of some of the clinical observations.

In giving alcohol by the mouth we employed 40 per cent brandy in amounts furnishing from 1 to 2 gms. of absolute alcohol per kgm. of body weight, *i. e.*, from 150 to 400 c. c. of brandy to each patient. This was given in the course of 1 to 2 hours in doses of 15 c. c. at intervals of from 3 to 6 minutes.

It has been estimated that under such conditions the alcohol passes into the blood and is distributed to the other fluids and tissues of the body at such a rate as to attain a maximal concentration of 2 per 1000 within one-half to one hour following its ingestion. This corresponds to a moderate degree of intoxication.

Administration by the mouth is not quite satisfactory, however, as the patients are apt to cause an interruption of the experiment by refusing to take more brandy. For this reason we changed to intravenous administration, using a 20 per cent watery solution in amounts varying from 100 to 500 c. c., introduced through a thin needle at low pressure and taking from 20 to 60 minutes to accom-

[1] From the Psychiatric Clinic of the First Leningrad Medical Institute (Prof. P. A. Ostankov) and the second Psychiatric Hospital (Chief: A. L. Schnirman).

[2] A. A. Perleman: An Experiment with Alcohol in Schizophrenia (in Russian). Obosrenie Psychiatrii, Vol. I. 1930.

plish the injection. In the mean time the patients' mental reactions were closely observed.

As the main object was to observe the excitement, the injection was stopped as soon as the stage of excitement was noted to be passing into that of drowsiness. Thereafter, observations of the patients' mental reactions were continued for several hours.

No untoward effects have occurred, other than slight vomiting in one case following a large dose, and, in another, local necrosis due to tissue infiltration caused by a sudden jerky movement of the patient's arm.

Following are abstracts from the records of seven illustrative cases.

CASE 1.—H., male, age 22, Finn, woodcutter. Psychosis of 2 years' duration; in hospital over a year; complete mutism over six months; in bed the last six weeks. Marked salivation, general rigidity, eyes half shut, mask-like expression, untidiness at times. On October, 28, 1933, between 11.15 a. m. and 12.30 p. m., the patient received by the mouth 150 c. c. of absolute alcohol in a 40 per cent solution. Until 11.50—mutism. After that answered questions by "I do not understand Russian." At 12.10 smiled, took a cigarette, asked for a match. At 12.15 began to talk spontaneously. Face hyperemic with lively play of expression. Talked rapidly, raised his voice. Said that he was to die in four weeks; that he had been silent for several months because he feared his enemies would kill him; that he had lain quietly in order not to draw attention to himself. Was fairly well oriented for time and place; knew the names of the physicians; answered relevantly. Expressed persecutory ideas with depressive coloring. At 12.40 excitement increased, patient gesticulated, laughed, speech became rambling as in marked intoxication. Elation continued until 3 p. m., patient talked a great deal, asked to be discharged, etc. On the following day mutism returned and has continued to date (August, 1934). Otherwise, however, there has been some improvement: he is no longer untidy; is more active, sociable, and cooperative; occasionally does some work in the shop.

CASE 2.—M., male, age 21, musician, had been ill a month. Motor excitement, grimacing; at times shrieks, unintelligible utterances; answers no questions, is totally inaccessible. On March 29, 1934, between 11.45 a. m. and 12.45 p. m., patient was given 450 c. c. of 20 per cent alcohol intravenously (his weight was 70 kgms.). A few minutes after the beginning of injection the patient became quiet, answered questions readily, and related in detail the onset of his illness. This condition lasted about ½ hour. As more of the alcohol solution was injected he became loquacious and began to sing. This was followed by rambling speech then diminished speech, some vomiting, drowsiness, and finally sleep. After several hours' sleep the patient wrote

a letter to his mother, correct in form and content. In a few days he became quiet, oriented, readily accessible, and on April 10, 1934, was discharged as recovered.

CASE 3.—S., male, age 19, had always been of subnormal intelligence, had done poorly at school. Psychotic for 1½ years; mutism from the day of admission; also grimacing, attitudes, silly behavior. Received alcohol on two occasions, on November 21 and 27, 1933: 250 c. c. of 20 per cent solution intravenously and 120 c. c. of pure alcohol (in 40 per cent solution) by the mouth, respectively. Each time he smiled, answered questions, and talked freely about himself and his relations; showed some insight, said, "I cannot talk, I am confused, my illness consists in this." After the second experiment there was no return of mutism. He became active, playful, talkative; at times echolalia was noted.

Improvements such as those described above were noted in 4 of our 15 patients. In seven other cases general disinhibition with resumption of speech also occurred, but lasted only as long as the patients remained under the influence of alcohol, as in the following instances:

CASE 4.—N., male, age 22, had been ill for about a year. Marked catatonic stupor with complete mutism. On December 15, 1933, he was given 150 c. c. of 20 per cent alcohol intravenously. Toward the end of the injection he began to answer some questions; spoke slowly in a low tone, expressing vague ideas of persecution and self-accusation; looked around anxiously, sighed, was markedly depressed and tearful. After several hours he returned to his former condition.

CASE 5.—C., male, age 34; stands in one position for hours, staring at a fixed point; complete mutism. Between 10.50 and 11.20 a. m. he received 300 c. c. of 20 per cent alcohol intravenously (body weight 53 kgms.). At 11.05 became tearful, face more expressive. At noon he began to talk and delivered a lengthy monologue. Spoke of his arrest, considered himself a martyr suffering for his convictions, expressed ideas of religious and political character, said his mutism had been in the nature of a protest against the existing state of affairs. After a few hours returned to his former condition.

CASE 6.—N., male, age 29, had been ill for over six years. General resistiveness, complete mutism, and negativism. During the alcoholization he laughed, gesticulated, said a few words, but remained inaccessible, behaving like an intoxicated deaf-mute. On the following day the mutism had disappeared, he was more active and sociable, deterioration was in evidence.

In four cases the alcohol seemed to produce no considerable change in behavior and the catatonic symptoms, including mutism, persisted, as in the following instance:

CASE 7.—B., male, age 26, had been ill two years. Complete mutism, passive negativism, smiles without cause. Received 300 c. c. of 20 per cent alcohol intravenously within a period of 36 minutes. In the course of the injection, patient at first showed no reaction, then laughed silently, then slept for 15 minutes. Upon awakening he was in his usual condition, answered no questions; quite atactic.

Summarizing the results that our experiments have yielded thus far, it would seem that alcohol often interrupts the course of catatonic stupor, producing a temporary, and sometimes lasting, cessation of mutism, torpor, and negativism. Under such circumstances it often becomes possible to gain access to the content of the patient's psychotic trend as well as to facts of case history.

Should further experience with alcohol in catatonic and hebephrenic cases yield similar results, the conclusion would be justified that a safe and simple procedure has become available as both a therapeutic and a diagnostic aid in the psychiatric clinic.

FALSE CONCEPTS OF DISEASES OR CONDITIONS AS PSYCHOGENIC FOCI.*

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The urge for adjustment to the environment may eclipse the importance of the wisest adaptations to oneself. Concepts, among other very intimate personal attributes, have not been accorded the consideration they deserve in the understanding of human beings. Our concepts often accumulate insidiously and remain dormant until occasion arouses us to formulate them in language or behavior. The degree to which such concepts are charged with emotion varies. The language of concepts laden with considerable emotion may seem to be identical with that of those not so conditioned, thereby demonstrating defects in language as a written or spoken vehicle of communication. The concept of a disease given in response to a mere request for it must differ from that given by a person who has evidence that the disease is threatening him. Frequently patients have dread, based on preconceived ideas about symptoms, which causes them to procrastinate in obtaining medical advice. By examining the concepts which people harbor, one may better understand the nature of some false threats to their security.

This study was made in order to ascertain the composite picture of some diseases and conditions which laymen possess, as well as the effect of isolated concepts on the life of the individual. One hundred persons were interviewed by one of us to get the free expression of their own ideas about cancer, tuberculosis, heart disease, nervousness, insanity, health, disease, masculinity and femininity. It is significant to note that 19 of those interviewed feared contracting one or more of the diseases under discussion. The laymen questioned were American-born; equally divided as regards sex; were between 20 and 70 years of age; were largely wage-earners; and were not connected with a medical institution or

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

physician's family. Leading questions were avoided and an interview was considered most satisfactory when spontaneous discussion of the subject proceeded without urging. This eventuated in a large collection of expressions which were recorded in the actual language used, as far as possible.

While the sources of the concepts were not always revealed, in many instances they were given. Seventy-nine declared that observation was largely responsible for their opinions; 48 gathered most

TABLE I.

THE 12 LEADING CAUSES OF DEATH FOR THE WHOLE CONTINENTAL UNITED STATES IN 1933.

	No.	Rate per 100,000 population.
Deaths from all causes	1,342,073	1067.7
1. Diseases of the heart	286,356	227.8
2. Cancer (all forms)	128,475	102.2
3. Cerebral hemorrhage, cerebral embolism, thrombosis	105,554	84.0
4. Nephritis, acute and chronic	104,263	82.9
5. Accidents (all forms)	91,085	72.5
6. Pneumonia (all forms)	86,947	69.2
7. Tuberculosis (all forms)	74,836	59.5
8. Influenza	33,193	26.4
9. Premature birth	32,951	26.2
10. Diabetes mellitus	26,835	21.3
11. Diseases of the arteries	25,831	20.6
12. Suicide	19,993	15.9

of their information from hearsay; 31 derived their concepts from newspapers, fiction and moving pictures; 16 had some personal experience with the diseases under discussion; only 11 had gathered meaning from books or pamphlets devoted to science; nine had reached conclusions by their own deductions; three stated that they had held their views as long as they could remember; two had acquired concepts in interviews with physicians.

Concepts included opinions chiefly on symptoms and signs of diseases, but to some extent also concerned cause, pathologic process, prognosis, and treatment. Something of these points of view will be presented. Time and space preclude reporting many of the very interesting details brought out in the interviews. The data

naturally fell into topics which were arranged in order of sequence, verbatim language frequently being retained. As far as possible, a concept of the disease from some authoritative source is presented along with the laymen's concepts for comparison.

In order to point out the relative significance of the diseases under consideration, Table I_1 is presented, giving the 12 diseases with the highest mortality for all of the continental United States in 1933.

Cancer.

Cancer ranked second among the causes of death in 1933 in the continental United States (Table I). The psychic ravages of this disease are undoubtedly quite great among those who fear it, as well as among those who are its victims. Common concepts of etiology included injury, irritation and other somatic diseases. Such beliefs doubtless modify at one time or another the equanimity and possibly the mode of life of those who hold them.

While some of the lay concepts were true, there were others that deviated widely from the known facts (Tables I-A and I-B). To the goodly number of persons who feel that cancer makes one "miserable," "sick all over," and creates "loss of morale" or "loss of appetite," there are doubtless many occasions in life when this serious disease is feared. This may be illustrated by the 45-year-old man who for several months gradually became downhearted and claimed very emphatically that he had cancer. Examination revealed no somatic disease. After his recovery he explained that he had been "so miserable that nothing less serious than cancer" could have made him feel so badly.

On the contrary, one's concepts may fail to contain those elements that are necessary for adequate protection. To those who do not have "mass, tumor, swelling, lump or nodule," or persistently "distended, uncomfortable abdomen," in their concepts, the disease may make serious inroads before it is detected. A woman, 37 years of age, married, consulted her family physician because of uncomfortable distention, believing herself to be pregnant. After a pelvic examination he assured her that she was not pregnant. Her distress continued unheeded for two months, at which time, on account of threatened intestinal obstruction, it was discovered that she had generalized carcinomatosis from the ovary.

TABLE I-A.

CONCEPTS OF SYMPTOMS AND SIGNS OF CANCER, AS GIVEN BY 100 LAYMEN.

	Concept.	Instances.
1.	Sores, ulcers, destruction of body	43
2.	Miserable, sick all over	42
3.	Lump, growth, tumor	32
4.	Gradual death, life eaten away	29
5.	Pain	26
6.	Weakness	17
7.	Loss of weight	14
8.	Loss of morale	13
9.	Loss of appetite	11
10.	Vomiting	6
11.	Pallor	6
12.	Bad odor	6
13.	Bleeding, bloody discharge	3
14.	Sleeplessness	2
15	Nausea, fainting, enlargement of abdomen, dizziness, headache, each	1

TABLE I-B_2.

EARLIEST SYMPTOMS AND SIGNS OF CANCER (AS PROVED BY BIOPSY OR NECROPSY) IN 100 PATIENTS WHO HAD IT.

	Actual findings.	Instances.
1.	Mass, tumor, swelling, lump, nodule	29
2.	Distended, uncomfortable abdomen	15
3.	Pain in abdomen	15
4.	Bloody sputum, vomitus, feces, urine, or bloody intermenstrual discharge	13
5.	Ulcer or sore	10
6	Weakness	5
7.	Jaundice	5
8.	Pain in chest	4
9	Dysphagia	4
10.	Weight loss	4
11.	Difficulty in breathing	3
12.	Vomiting	3
13.	Cough	3
14.	Burning of external genitals	3
15.	Frequency of urination	3
16.	Constipation, nasal obstruction, urinary obstruction, nausea, diarrhœa, pain in head, each	1

While the composite concepts presented in Tables I-A and I-B are of great importance from the standpoint of public health, it is the false, isolated beliefs which may have a distressing part to play in individual lives. This may be illustrated by the anxiety that may come to those holding beliefs that all tumors are cancer, that cancer affects only the aged, that all cancers are fatal. Such concepts afford the most significant approach to re-education and may initiate the need for psychotherapy.

Tuberculosis.

Tuberculosis ranked seventh among the causes of death in the continental United States in 1933 (Table I). The public seems to be especially well informed about this disease, probably due to the extensive educational programs of anti-tuberculosis societies. Twenty-four persons believed the disease to be due to some form of dissipation or bad habit, and 18 others regarded it as related to poor sanitation and hygiene. It is interesting to note that not only in this, but in other diseases, morals and health come to be closely associated in the public mind.

In comparing Tables II-A and II-B one may see irrelevant factors in the laymen's concepts which could very well form the basis of unwarranted insecurity. That the usual symptoms of tuberculosis may be associated with another disease and lead one astray is illustrated by a man, 39 years of age, who became very exhausted during a six-week period one spring. He lost his appetite and, as a consequence, 20 pounds in weight. He became very anxious, worried about himself, and slept poorly. He coughed repeatedly, unproductively, until the throat and vocal cords became inflamed. He repeated frequently his belief that he had a "hopeless case of tuberculosis" and even went to a western climate for a time. Except for undernourishment, careful examinations failed to reveal tuberculosis or other somatic disease. He recovered within a year.

In contrast, the cardinal symptoms of tuberculosis may be misinterpreted. A man, 42 years of age, married, a gardener, lived on the southern seaboard where malaria had been common in the past. He lost weight and had chills and fever two or three times a week. He decided to take quinine, thinking he had malaria. After three months of treatment, with no improvement, he coughed up about a

TABLE II-A.

CONCEPTS OF SYMPTOMS AND SIGNS OF TUBERCULOSIS FROM 100 LAYMEN.

	Concepts.	Instances.
1.	Weakness, easy fatigability	47
2.	Lungs affected by spots, shrivelling, cavities, pores, blisters, collapse, degeneration weakness, pus	46
3.	Loss of weight	29
4.	Pallor, anemia	19
5.	Coughing up blood	18
6.	Much expectoration	14
7.	Loss of appetite and digestive disturbances	10
8.	Flushed face, disturbance in facial expression	10
9.	Consumes and destroys a person	9
10.	Fever, night sweats, each	8
11	Pain in chest	7
12.	Difficult breathing, affects bones and joints with pus, each	6
13.	Persistent cold or catarrh	5
14.	No concept	4
15.	Affects throat	4
16.	Choking spells, morbid mentality, sleeplessness, headache, longings for peculiar food, each	2
17.	Inability to cough, bed ridden, cold clammy hands, boils, unusual optimism, heavy funny feelings, dry falling hair, swelling of feet, dryness of joints, convulsions, affects muscles, affects stomach, liver enlarges, blood gets thinned, affects lymph glands and breast, forms tubercles, each	1

TABLE II-B$_1$.

SYMPTOMS THAT FINALLY MADE 200 TUBERCULOSIS PATIENTS SEEK MEDICAL AID.

	Symptoms.	Instances.
1.	Fatigue	46
2.	Cough	46
3.	Chills and fever	25
4.	Pain in chest	21
5.	Spitting of blood	17
6.	Colds (severe or persistent)	17
7.	Hoarseness	4
8.	Indigestion, loss of weight, each	3
9.	Tuberculosis in family, pain in joints, discharging ear, each	2
10.	Nervousness, night sweats, sore throat, loss of hearing, rectal abscess, amenorrhœa, kidney trouble, each	1

cup of red blood. Examination by a physician revealed a moderately advanced pulmonary tuberculosis in both lungs; tubercle bacilli were found in his sputum.

Concepts of tuberculosis which include heredity and incurability may be the basis for much disability when the disease itself is not present.

Heart Disease.

Heart disease ranked first among the causes of death in the continental United States in 1933 (Table I). Of those interviewed, 32 attributed the cause of heart disease to " worry, trouble, anger, fright," and other emotional disturbances. This probably explains the frequent reference to the heart in terms of describing emotions, such as " hearty, disheartened, discouraged, downhearted, courage." Twenty-three felt that heart disease was caused by overwork, and a like number conceived it as a consequence of dissipation or intemperance.

A comparison of Tables III-A and III-B reveals a large number of misconceptions which laymen have about heart disease. While heart disease is associated with the highest mortality, to harbor the belief that it produces sudden and unexpected death may be the basis for much unjustifiable anxiety. A man, 42 years of age, having lived in close association with a favorite uncle who had succumbed to angina pectoris, became acutely anxious about his own heart. Distress in that region was described with intense anxiety and he feared being alone. Electrocardiographic and other studies did not give evidence of somatic disease. By subtle inference he had acquired grave doubts as to the validity of numerous examinations that disclosed no heart trouble. A long chronic psychosis, with depression and worry about his heart, followed.

On the contrary, misconceptions of presenting symptoms and signs of heart disease form a hazard to adequate self-protection. A woman, aged 60, who had always worked hard, began to be short of breath and cyanotic in ascending a few stairsteps, or walking faster than usual. She regarded these as characteristics of growing old. One day after more work than usual she dropped dead. Necropsy revealed a ruptured heart, a rare cause of death.

The insidious insecurity of associating such symptoms as fainting spells, dizziness, lack of ambition, and gas around the heart too closely with heart disease is difficult to estimate without careful study of the individual's life.

TABLE III-A.

CONCEPTS OF SYMPTOMS AND SIGNS OF HEART DISEASE FROM 100 LAYMEN.

Concepts.	Instances.
1. Shortness of breath	29
2. Weakness, lack of ambition, prostrated easily, slow of response	26
3. Rapid heart, palpitation, high pulse, fluttering heart	21
4. Fainting spells, smothering sensations, dizzy spells	16
5. Heart pain	14
6. Blueness, swelling, flushing of face	10
7. Sudden death	10
8. Irregular pulse, weak pulse, skipped beats, heart too rapid or too slow	10
9. Pallor, dopey look, pasty complexion	5
10. Nervousness	4
11. Loss of weight, indigestion, gas around heart	3
12. Cough, swelling of ankles, high blood pressure, enlargement of heart, depression, each	2
13. Congested arteries, numbness, excitability, hot flashes, headache, tremulousness, obesity, low blood pressure, anemia, murmurs, each	1

TABLE III-B.

CONCEPTS OF SYMPTOMS AND SIGNS OF HEART DISEASE (IN ORDER OF IMPORTANCE) BY NATIONALLY KNOWN CARDIOLOGIST.

1. Shortness of breath, dyspnœa.
2. Blueness, cyanosis.
3. Swelling of extremities, edema.
4. Swelling of abdomen, anasarca.
5. Pain in region of heart.
6. Attacks of shortness of breath, making it necessary to sit up; paroxysmal dyspnœa and orthopnœa.
7. Loss of appetite, anorexia.
8. Nausea.
9. Vomiting.
10. Vertigo, dizziness.
11. Fainting attacks, syncope.

NERVOUSNESS.

Since nervousness is such a very general term, used to describe a variety of conditions, it seemed essential to learn the layman's concept of it. Causes of nervousness were felt by 63 persons to be "worry, trouble, something to be afraid of, disappointment." "Modern American high-tension living, improper living," were regarded as causes by 53 persons. It may be true that nervous phenomena are largely by-products of the disharmony which sacrifices life for profit, speed and mechanical supremacy, all the while ignoring the biologic needs and capacities of man.

The layman's concept of a neurosis is an objective one, dependent chiefly on what can be seen in the way of movement or restlessness, and is further tinctured by the idea of outward displays of emotionalism (Table IV-A). This tends to explain why laymen develop such intolerance toward persons who appear outwardly healthy and composed, but who possess distressing thoughts and feelings. The discrepancy between the layman's concepts and facts obtained by observation and study is shown in Tables IV-B and IV-C.

A frequent problem of the so-called nervous patient is presented in the following: A man, 36 years of age, a salesman, after much persuasion by his family physician, consulted a psychiatrist because of "pressure in his head" and "nervousness," which proved to be the fear of getting very far from home. This obsession had bothered him for many years, but became more troublesome than usual after an increase in his occupational responsibilities. The physical examination was essentially negative. The patient said, "I know I am nervous, but does this lead to insanity?" After a rest, he came to understand that his obsessions were annoying but not dangerous, and he got on splendidly.

Two fairly prevalent notions about nervousness that are often disclosed in the practice of medicine were not brought out in this study. It is a common belief that the chief treatment needed is to admonish the victim of nervousness to exercise *self-control,* or "to snap out of it." Of course, this presupposes a certain attenuation of the vigilance normally exerted over reactions to the stresses and strains of life. Furthermore, the implication is that failure to exercise voluntary control is *prima facie* evidence of a weak personality, deserving of contempt. The prevalent concepts of "con-

TABLE IV-A.

CONCEPTS OF THE SYMPTOMS AND SIGNS OF NERVOUSNESS AS GIVEN BY 100 LAYMEN.

	Concepts.	Instances.
1.	Shaky, scratching, trembly, fidgety, jumpy, twitching, picking, rubbing, biting nails, restless, quick speech, involuntary movements, muscle spasms	89
2	Easily excited, quick tempered, over-emotional, irritable, moody, impatient, easily startled, strained, sensitive, easily flushed	64
3.	Gastro-intestinal troubles, disturbed, weak, nervous stomach, gas, vomiting, constipation, diarrhœa, loss of appetite, capricious appetite	17
4.	Weak, reduced vitality, lack of ambition	12
5.	Worry, despair, despondency, much thought over trouble, suicidal, morbid, obstinate	11
6.	Sleeplessness	9
7.	Lack of self-control, irresponsibility, irrationality	9
8.	Glassy eyes, enlarged pupils, staring expression, twitching eyes	5
9.	Fears, pain, persistent pain in one spot, terrible agony, weak heart, high blood pressure, rapid heart, imaginary ailments, impulses to scream, curse, or choke, loss of interest, leading to insanity or mental disorders, each	3
10.	Chilliness, cold extremities, headache, frequent urination, addiction to drugs, each	2
11.	Asocial, fickleness of purpose, unable to work, affects all organs of body, swelling of hands, lack of coordination, absent-minded, each	1

TABLE IV-B4.

SYMPTOMS OF 164 PSYCHONEUROTICS, IN ORDER OF FREQUENCY.

1. Pain or ache, or soreness in some extremity or joint of body (exclusive of head).
2. Nervousness, restlessness, excitability, sensitive to noises.
3. Sleeplessness.
4. Headache, or peculiar feelings in head.
5. Weakness, fatigability.
6. Abdominal distress due to gas, or peculiar feelings in abdomen.
7. Dizzy spells, with spots before eyes.
8. Tremors (usually periodic).
9. Pain or peculiar sensations in chest (excluding precordium).
10. Pain or discomfort over precordium.
11. Shortness of breath or choking sensation.
12. Speech defects (stuttering, stammering).

trol" and "contempt," not only among laymen, but in the medical profession itself, doubtless tend to influence the nervous person to identify his disability with the well-known bodily diseases which are caused by bacteria, degeneration, or trauma, and are treated with the utmost respect. The great variety of ways in which our emotional life, pleasant or unpleasant, may express itself with the body as the *modus operandi* baffles those who are accustomed to explaining cause and effect in the simplest and most direct terms.

Not only is it essential to learn the layman's concept of diseases, but it is equally valuable to ascertain the physician's concept, especially in such vague disturbances as nervousness. This is illustrated in the following: A woman, 52 years of age, whose husband had

TABLE IV-C.

THE SEVEN MOST FREQUENT SOMATIC DISORDERS FOUND, IN ORDER OF FREQUENCY, IN THE SAME 164 PSYCHONEUROTICS.

1. Hyperopia, myopia, astigmatism (usually mild).
2. Chronic pulmonary tuberculosis (arrested).
3. Chronic catarrhal otitis media.
4. Pyorrhœa alveolaris.
5. Pes planus.
6. Thyroid enlargement, with or without evidence of hyperthyroidism.
7. Bronchitis, chronic.

died several years previously with a bulbar palsy, was admitted to the hospital because of aphonia of about two months' duration. She had always been emotional and on many occasions had lost her voice under stress, regaining it after rest. Several years before her right breast had been radically amputated for carcinoma. Her physician, recalling her previous vocal disability, again diagnosed it a functional aphonia. Laryngoscopic examination revealed paralyzed vocal cords, the first intimation of a recurrence of the carcinoma involving the mediastinum. She died in a few weeks and necropsy revealed a widespread carcinomatosis.

INSANITY.

One is impressed by the prevalence of ideas of violence, homicide, treachery, assault and atrocities (Table V-A) in the layman's concept of insanity. Such beliefs, apparently so widespread, afford opportunity for a mental hygiene program for many years to come.

Contrary to popular belief, apathy or indifference, especially in caring for themselves, are probably the symptoms most frequently encountered among the insane (Table V-B). Varying degrees and qualities of apathy exist quite generally in our population. The

TABLE V-A.

CONCEPTS OF SYMPTOMS AND SIGNS OF INSANITY FROM 100 LAYMEN.

	Concepts.	Instances.
1.	Violent, sudden outbreaks; alternately violent and harmless; wild, unruly; abnormal strength	32
2.	Eyes changed; wild, bulgy, glassy, starey, dull, vacant, rolling, sunken	17
3.	Simple, foolish, silly, childish	16
4.	Homicidal, attack people, commit atrocities	15*
5.	Motionless; unresponsive to questions; does not associate with people; sits and stares into space; indifferent to family; personal negligence	6
6.	May have normal periods	5
7.	Irresponsible; do not know what they do	4
8.	Suspicious of everyone; imagine people talking about them	4
9.	Treacherous, crafty	4
10.	Noisy, yelling	4
11.	Talk to themselves; talk too much	3
12.	Think they are someone else	3
13.	Rapid thinking; jumping from one thought to another in a hurry; mind wanders	3
14.	Nervous, impatient, jumpy	3
15.	Loss of appetite and weight; gluttonish appetite	3
16.	Over-religious; have fits; loss of memory, each	2
17.	More intelligent than normal people at times; no borderline between insanity and normality; begins as nervous breakdown; insomnia; sensitive; self-abuse; obsessions; over-concentration, each	1

* The number of persons with homicidal impulses per capita in state hospitals is probably considerably less than it is in some large American cities.

very antithesis of such a state is to be found in the lives of Leonardo da Vinci, Hugo Grotius, Turgot, Florence Nightingale, or William H. Welch, who had deep and multitudinous interests touching life on every hand.

That insanity may be the display of energy directed into useless channels is illustrated by the following: A man, 37 years of age, single, who had always been a capable farm laborer, but shy and

seclusive, began to hoard small objects such as stones, sticks, papers, pencils, strings and pieces of glass. He secreted them in his clothing, in bureau drawers and other places about the house. Intent on these hoardings, he gave up radio and one or two other hobbies previously enjoyed. His ability to work was impaired by this impulse and he became irritable when his cache was molested. It became necessary to place him in a state hospital where he continued the same practice, but got on well and was able to do some work. His brother re-

TABLE V-B$_8$.

THE SYMPTOMS AND SIGNS MOST PREVALENT IN THE PATIENTS OF STATE HOSPITALS OF THE UNITED STATES—ESTIMATED.

(In Order of Frequency)

1. Apathy, indifference, inadequate and unstable emotional reactions.
2. Delusions, false beliefs, gross misinterpretations.
3. Sad, melancholy, depressed, suicidal.
4. Memory failure.
5. Hallucinations.
6. Defective judgment (occupational and otherwise).
7. Oddities or peculiarities of behavior.
8. Elation, euphoria, exuberant feelings.
9. Confusion as to time, place and person.
10. Over- or under-activity.
11. Marked irritability and inability to get along with people.
12. Very slow or rapid thinking.

marked, after visiting him one day, that had he hoarded dollars instead of useless articles he might have become wealthy instead of insane.

Far from the layman's concept of a " violent, homicidal, treacherous person," is the following not unusual case: A young man, 32 years of age, single, six feet tall, weighing 190 pounds, a clerk, gradually lost interest in his parents, his work, the newspapers, books, games, members of the opposite sex, friends, and stared toward the wall, smiling occasionally but usually uncommunicative. He displayed no anger, fear or resentment. He went to his meals regularly and gained weight. The physical examination was negative. He was transferred to a state hospital where his social usefulness was not regained.

TABLE VI-A.

CONCEPTS OF HEALTH GIVEN BY 100 LAYMEN.

	Concepts.	Instances.
1.	Feeling of well-being, mentally well, mental alertness and aggressiveness, ambition, pleasant state of mind, freedom from anxiety, contentment, able to enjoy life's happiness	66
2.	Pep, energy, vitality, vim, vigor, strength, physically fit, athletic, robust	66
3.	Able to work, to achieve, to do, to function, to earn a living, independence, self-sufficiency	30
4.	Glowing, radiant, synonymous with sunshine, good color, red cheeks, clear shining eyes, amiable, youth	26
5.	Freedom from pain, able to sleep well, good appetite, good stomach, ability to ward off disease	14
6.	Greatest thing in the world	12
7.	Avoirdupois, longevity, ability to bear children, intelligence, able to keep up with the crowd, when a doctor tells you have it, each.	1

TABLE VI-B.

CONCEPTS OF DISEASE GIVEN BY 100 LAYMEN.

	Concepts.	Instances.
1.	Sickness, ailment, malfunctioning of body or mind, enduring malady, affliction, spontaneous breaking down of body tissues, sub- or supernormal temperature, undernourishment	26
2.	Something terrible, fearful, worst thing imaginable, a nasty thing, repulsive, pitiful, unclean, rots away like leprosy	21
3.	Moroseness, downheartedness, dark outlook, loss of faith, down and out, worry, trouble, hardship, causes inferiority complex	21
4.	Germs, infection of living things, something contagious, malfunctioning caused by bacteria	16
5.	Physical hindrance to activity, helplessness, sluggish, drooping, knocks you out, puts one to bed and makes one weak	15
6.	Leprosy, insanity, tuberculosis, heart disease, cancer, venereal disease	13
7.	Misery, suffering, pain, unrest	12
8.	Drawn face, sullen-looking, greasy look, anæmic-looking, running nose	6
9.	Irritability	4
10.	Creepy, insidious	3
11.	Unhealthy, lack of health	3
12.	Degeneracy, disillusionment, each	2
13.	Hospitals, sanitariums, doctors, nurses, death	2
14.	Something that makes me angry	1

Health and Disease.

Unfounded concepts of health and disease may interfere with one's well-being, as has been illustrated previously. The person whose concept of health includes chiefly "pep, energy, vitality and vim" (Table VI-A) might regard himself unhealthy if he by disposition were of a slow, easy-going nature. The feelings of those who regard disease as "terrible, fearful, the worst thing imaginable" (Table VI-B) may at intervals be subject to compound forms of anxiety when disease actually threatens.

Confused thinking about health and disease is brought out in the following history: A young man of 28, of less than mediocre intelligence, unable to accomplish as much as other members of his family, explained it, not by difference in intelligence, but by less fortunate health. The physicians he had consulted had made a diagnosis of psychoneurosis, which he could not understand, but which was *prima facie* evidence to him that he was handicapped by a disease characterized by a lack of the "pep, energy, vim" of those about him.

Masculinity and Femininity.

The importance of our concepts of the masculine and feminine are apparent when one considers the problems that confront persons who are not readily accepted as representatives of their sex. How such concepts have been formed has already received much attention in studies bearing on the attachments or antipathies between parents and their children. The mating impulses, with free expression, incorporate into acts experiences from various sources. It is not strange that "attractiveness" should be found foremost in the concepts of both men and women for the opposite sex (Tables VII-A, VII-B; VIII-A and VIII-B). Masculine physical vigor and strength are standards which have a high appeal to men. Men regard intelligence in their own sex as a manly virtue, but this trait is not quite so prominent in the male's concept of the female, nor in her imagery of him. It is probable that the nurture of wiser concepts of masculinity and femininity could make a contribution to eugenics.

Peculiar concepts of masculinity may lead to unusual behavior, as illustrated by the following: A minister, 63 years of age, injured

himself by falling from a tree, thereby sustaining a concussion of the brain. Inquiry brought out the fact that he had been chided about "not being much of a man any more" and he resorted to the expedient of demonstrating his manly strength and vigor by tree-climbing.

TABLE VII-A.

CONCEPTS OF MASCULINITY GIVEN BY 50 MEN.

	Concepts.	Instances.
1.	Physical strength, able-bodied, athletic, strength of voice and manner, well-nourished, virility	31
2.	Firmness of character, clean mind, honesty, high ideals, conscientious, reliable, dependable	25
3.	Intelligence, educated, well-versed, resourceful, ingenious	18
4.	Industriousness, courage, perseverance, studiousness	15
5.	Gentlemanly, human sympathy, approachable	11
6.	Poise, straightforward, decisive, pep, self-confidence, personality	6
7.	Healthy	5
8.	Good fellow, regular fellow, good mixer	3
9.	Sexual potency, sexual sensitivity	3
10.	Max Baer, the average policeman	2
11.	Freedom from inferiority complex, a husband, a man with the character of a fine woman, each	1

TABLE VII-B.

CONCEPTS OF MASCULINITY GIVEN BY 50 WOMEN.

	Concepts.	Instances.
1.	Handsome, tall, dark, brown, rough, rough unpressed clothes, well-dressed but not foppish, ruddy complexion	36
2.	Physical strength, broad shoulders, athletic, virile, power, active, muscles of arms well built, quiet strength	29
3.	Firmness of character, honesty, honor, stability, dependability	28
4.	Gentlemanly, humaneness, human sympathy, tolerance	12
5.	Poise, self-respect, executive ability, straightforward	10
6.	Intelligence, educated, breadth of understanding	9
7.	Determination, courage	9
8.	Health, cleanness of body	8
9.	Well-sexed, quiet sex appeal	2
10.	A teacher, Clark Gable	2
11.	Sense of humor, wealthy, each	1

TABLE VIII-A.

Concepts of Femininity Given by 50 Men.

	Concepts.	Instances.
1.	Attractiveness, beauty, charm, daintiness, refined, good-natured, smart-appearing, slender, tall, coy, good figure, poise, personality	61
2.	Devotion, fidelity, sex purity, loyalty to home	19
3.	Health, physical cleanliness	14
4.	Education, intelligence, breadth of interest	13
5.	Motherly, good home builder	12
6.	Considerate, open-minded, broadminded, tolerant	12
7.	Good character, trustworthy	6
8.	Companionable, sociability	4
9.	Serious-mindedness	2
10.	Courage	2
11.	Sincerity	2
12.	Conservative, self-sacrificing, dependent, chiffon, vanity, athletic, each	1

TABLE VIII-B.

Concepts of Femininity Given by 50 Women.

	Concepts.	Instances.
1.	Beauty, charm, attractive, poise, soft-spoken, blue-eyed, meticulous dress, sweetness, graceful figure, lovely skin, dainty, small, refined, smiling	60
2.	Motherly, home-maker, good housewife, loyalty to home	24
3.	Educated, intelligent, integrated	14
4.	Trustworthy, reputation, self-respect, truthful, honor	13
5.	Cleanliness	6
6.	Kindness, sympathy	5
7.	Dependent, clinging vine	4
8.	Sex loyalty	4
9.	Sincerity	2
10.	Friendly	2
11.	Jealousy	2
12.	Thrifty	2
13.	Athletic, inspiration to children, love of good music and literature, sense of humor, a fluttering dress, passive, slyness, gossipy, hysterical, each	1

Discussion.

The concepts selected for study were taken more or less at random from a group known to be bothersome to patients. The value to be derived from studying other concepts such as syphilis, Bright's disease, heredity, personality, security, and happiness, is obvious.

Concepts are built into our life experience little by little from many sources, some of which are outside our control. They may be as difficult to modify as to change radically one's basic religious beliefs or to free ourselves in adulthood from the accretions of our childhood training.

It would seem that the *raison d'être* of a concept should be the protection of the individual. From personal and public health viewpoints it might be wiser to have no beliefs than to harbor false ones about disease. Man has made great strides in protecting himself against deleterious bacteria. To prevent our concepts from becoming distorted provides a different but no less intriguing a field for public health endeavor. The multitudinous avenues by which man's concepts are built up, whether he wishes it or not, give testimony to the necessity of preventing contamination of the psychic stream.

Summary.

1. The concepts which 100 laymen have concerning cancer, tuberculosis, heart disease, nervousness, insanity, health and disease, masculinity and femininity, were elicited by interview. These are summarized in tables.

2. Numerous discrepancies may be found between a layman's concept and the known facts.

3. Such discrepancies constitute causes for insecurity through unnecessary anxiety about diseases not found to be present.

4. Incomplete or false concepts may be the basis of inadequate protection to a person with the symptoms and signs of serious disease.

5. False concepts may cause the usual signs of disease to be distorted.

6. False concepts may thus be the basis for psychogenic vulnerability under certain circumstances and to certain individuals.

7. False concepts may, at times, be as deleterious as disease-producing bacteria.

8. The study of concepts of disease and conditions has important mental hygiene and public health implications.

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DISCUSSION.

DR. ROGER E. PINKERTON (Akron, Ohio).—Mr. Chairman, I feel that Drs. Ziegler and Heyman have given us a presentation on a very timely and important subject. Anyone acting as consultant to patients, either in the field of psychiatry or other fields of medical endeavor can hardly escape noticing the frequency with which false conceptions of diseases and health cause patients to seek treatment and explanations, and often interfere with their recovery. No one can have perfect conceptions and understanding of disease processes, but it is certain that many persons hold concepts that are far from the truth. These arise from sources mentioned in the doctors' paper and others, such as advertising by press or radio; the teachings of cultists and irregular practitioners; the associates of the patient and the publicizing of data by local health departments, such information usually being misinterpreted, thereby causing public panic and hysteria.

Even hospitals make some little use of ritual and subtleties in causing people to be health-conscious and, lastly, physicians themselves, rarely I believe for commercial reasons, but often because of lack of foresight and insight, give inaccurate conceptions or fail to correct those already existent in the patient.

How may these be avoided? Partly by public education, using the facilities at hand or that can be devised; but chiefly by the individual physician who stands in a relation to his patient that is peculiarly favorable towards this end.

DR. JACOB HEYMAN (Newark, N. J.).—There is very little that I can add to what Dr. Ziegler has said. I derived a great deal of pleasure from the work that I did on the paper in conjunction with my work as a senior student

in the department of neurology and psychiatry of the Albany Medical College, and I hope to be able to go on and do much more work along the lines suggested by Dr. Ziegler.

CHAIRMAN CHENEY.—The paper recalls to me what was brought out recently in the study by Dr. Dunbar on psychosomatic relationships, namely, that persons with actual heart disease are much more apt to minimize or sometimes to cover up their symptoms than persons of a neurotic nature who very often have a much more open expression regarding symptoms of what they believe is heart disease. Therefore, in differentiating between a neurotic and an organic heart condition, one is sometimes helped by considering the comparative emphasis that the patient places on his symptoms of what he thinks is heart disease. I wondered whether Dr. Ziegler was inclined to agree with that.

DR. LLOYD H. ZIEGLER (Albany, N. Y.).—I think that I would agree with what Dr. Cheney has just said, that the individual who reacts neurotically has a different response to either somatic disease that he has, or one which he feels he has, than the non-neurotic person under the same conditions. The latter is more likely to minimize serious troubles.

DR. E. E. SOUTHARD'S SCIENTIFIC CONTRIBUTIONS TO PSYCHIATRY.

An Appreciation After Twenty Years.*

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Dr. Southard was distinctly a phenomenon of his time and sphere. In a career that covered barely 15 years he labored to a degree and recorded achievements that in retrospect appear almost superhuman. His assault on the basic problems of mental disorder was the most direct, intensive and able that has yet occurred with the exception of that of Kraepelin. In the years allotted him to work Southard produced some 160 distinct contributions to neuropsychiatric literature, that is to say, papers that posed a thesis and advanced evidence bearing upon its elucidation. Some of the general subjects touched upon and the number of papers (placed in parentheses) devoted to each subject were: individual case studies (14); anaphylaxis, neurological aspects (7); encephalitis and meningitis (10); bacteriological studies on the cadaver (4); various clinical phases (10); geographical distribution (2); the origin of delusions (5); epilepsy (8); mental hygiene (10); education and research (10); psychology (16); social service (12, one book); nomenclature and classification (13); and the gross and microscopic pathology of mental disorders, more particularly dementia præcox (25). This American display of quantity is made, not with any intention to impress by force of numbers, but to show that Southard's outlook was broad and untrammelled.

It is for the reasons thus made apparent—coupled with the stimulus of a prospective biography by Dr. Gay—that an appreciation is attempted at this time after (an average of) 20 years of psychiatric experience. The issues treated by him are as alive as ever and it is incumbent upon us to be entirely clear on what such an authority found and concluded concerning them. Indeed Southard's ideas have a significance over and above the evidence which he

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was able to present on paper. The fact that the pathological studies should be more particularly chosen for review here does not indicate any verdict as to what is scientific or important in this field, but is in line with what Southard evidently considered his most significant efforts.

A few explanatory remarks are perhaps due Southard's methods of research and presentation. His spirit of work was evidently that of making real headway against age-old problems and he proceeded in his own way. Knowing that pertinent information might come from almost any obscure lead, he was ever feeling his way, experimentally and logically, in the "Egyptian darkness." And realizing the unlikelihood of any great discovery that would reveal all, the method he adopted was an orderly step-by-step advance through the utilization of logic and available small indications gathered either from the literature or from his own contributions. Hence the great number of possibilities tested out and the peculiar construction of his papers with their innumerable statistical summaries, cross comparisons, discriminating evaluations of the literature, excursions into logic and their extended final summaries and conclusions which were sometimes almost as long as the papers themselves. He thought aloud in his papers—for which we may now be thankful. A master of the art of tentative reasoning, he suggested much, but reached final conclusions only rarely.

Southard's assault on the psychoses really began with two articles (both with Mitchell) respectively on melancholia with nihilistic ideas and on 23 cases of insanity arising in the sixth and seventh decades.[1-2] These were straight fact-finding clinical and anatomical studies, the former with especial attention to the delusions of negation then interesting psychiatrists, the latter with emphasis on cortical pigments, of interest because of Alzheimer's recent work. One conclusion, still to be kept in mind, was that neither cerebral atrophy nor arteriosclerosis accounts for all cases arising in these age periods but that seven of this latter group were possibly manic depressive and two, dementia præcox. Otherwise the findings were largely inconclusive.

Then comes a full case report (with Ayer) in which both emotional and toxic factors appeared as antecedent influences (a hint to the Freudians of the time), and which is also interesting as introduc-

ing lines of investigation which were to be followed later.[3] In this paper is found the first of his "theory and experience" analyses which were to become so characteristic a part of his papers. In the same year, 1908, appeared also one of Southard's major studies, that on epilepsy, but its consideration will be deferred until that subject is introduced.[17] Then there is a clinical and anatomical investigation of the cerebral atrophy of old age, merely to define the symptoms connected with this condition.[4] An incidental conclusion was that it is quite unsafe to assign the atrophy to arteriosclerosis.

The Pathological Anatomy of Dementia Præcox.

At this point (1910) comes the first of the two papers which with the attendant studies constitute Southard's magnum opus.[5] The subject is the topographic cerebral anomalies, atrophies and scleroses found in dementia præcox. Here he introduces a new technic and a new approach, the technic consisting of the delicate palpation of cortical resistance and the approach, the careful comparative estimation of gross atrophies and anomalies of various brain regions. Although preceding contributions give little inkling of how Southard came to attack the problem of mental disease in the way he did, he himself drops a few hints: "I was instigated to the analysis of my own material by the conviction that though the histopathologists had not proved their case beyond peradventure, the functionalists were in the same plight. . . . . Neither stratigraphical changes nor cytopathological changes taken as exhibited throughout a brain appealed to me as likely to throw much light on the immediate mechanism of dementia præcox. . . . . In making some years ago an analysis of the first 1250 autopsies of the Danvers State Hospital and collecting the lesions of the different parts of the brain in card catalogue form I had been much struck with the preponderance of brain lesions in certain areas. . . . . In connection, however, with work on encephalitis, on gliosis and especially on the soft brain I had begun to gather unusually careful data concerning focal and general variations in consistence of brains." In this first paper we miss the dogmatic note, Southard contenting himself with merely stating his findings and presenting some brief deductions based upon them.

This paper begins with a statement of the situation in unusually frank terms, followed by a synopsis of the literature on the organic side but with recognition of the claims of the functionalists, the author asserting himself to be still open-minded. Then the palpation technic and the topographical approach are introduced. Sixty-three cases are selected from the Danvers material as being probably or possibly dementia præcox, Southard not even accepting the view that dementia præcox was established as an entity. A number of preliminary surveys of this material are made and many cases showing gross cerebral atrophy, arteriosclerosis and diffuse meningitis are excluded just to be on the safe side, although the bearing of some of these changes on dementia præcox is not denied.

To eliminate possibly complicating and terminal changes in the microscopic material, the question of tuberculosis as well as some other conditions is inquired into, only "thirteen cytologically appropriate cases" remaining. The cytological studies on these cases are done in order to know how to judge the macroscopically normal cases when studied microscopically.

The cases with minor anomalies and glioses are described in some detail. First they are analysed as to the possible congenital or acquired nature of the lesions and it is found that a maximum of 14 cases had lesions that might be considered acquired and eight, lesions of a congenital nature. As to the distribution of the lesions and its connection with attending symptoms, it appeared tentatively that the majority were pre-Rolandic and likely to be attended by delusions and a lesser number post-Rolandic and, along with the cerebellar group, prone to show catatonic features.

The group of 14 cases without recorded lesions is now examined more closely and through the finding of lesions or through exclusions for other causes is reduced by six; and on the eight remaining, the microscope is used. Southard concludes, "Of these eight, four show in certain regions characteristic gliosis and satellitosis. The other four have so far proved refractory to our efforts to show stratigraphic alterations. The result is that 24 out of the chosen 28 cases show either gross and microscopic lesions or microscopic lesions alone, *i. e.*, 86 per cent."

On this note of the prevalence of minor alterations in structure in dementia præcox, and with certain speculations on the implications of the topographic idea, Southard closes; although no brief

statement can give an idea of the way in which he interweaves literature, logic, pathology, psychology and clinical features in his orderly advance towards his conclusions. In all this he is clearly feeling his way. He appears to be quite sure of himself as to procedure and data but he will not venture far into implication or scarcely at all into interpretation. He explains, "I believe that the brain permits certain mental symptoms to develop and purveys these symptoms much as the kidney of a diabetic permits and purveys glycosuria."

Four years later Southard had gained appreciably in assurance and the second paper ends with probably the most positive major conclusion of his career. In the meantime he had carried on research assiduously and accumulated much experience. He had contributed papers on errors in diagnosis, bacterial pathways, the geographical distribution of insanity, the somatic source of somatic delusions, delusions and cortex lesions in paresis, and the mind-twist and brain-spot hypothesis and he had had rich clinical contacts in the new psychopathic hospital. Then too he had added to his implements the method of photography of the brain stripped of the arachnoid.

Again, he professes that he is still open-minded. Concerning preconceptions he takes care to explain: "Thus if A believes that 'insanity is a brain disease,' B that 'insanity is a disease of function,' C that 'insanity is a faulty adaptation of the individual to the environment,' D that 'insanity is hereditary,' E that 'insanity is due to the operation of subconscious "complexes"' the chances are against preservation by A, B, C, D or E of a non-partisan attitude to the particular problems of dementia præcox (to say nothing of prejudice to the entire problem of mental disease). . . . . Without betraying myself to the uttermost depths and executing a veritable 'catharsis' (*pace* Freud) of logical conceptions let me state that for the most part I do not allow myself to admit entertaining any prejudice in this regard." He adds that the findings of 1910 "came as a surprise to me since my preconception had been, if anything, that the brain would be found essentially normal in dementia præcox, *i. e.*, an example of the concept of 'discords played on good instruments.'"

He verifies this insistence in the second paper, entitled *On the Topographical Distribution of Cortex Lesions and Anomalies in*

Dementia Præcox with Some Account of Their Functional Significance, by giving rather extended reviews of Kraepelin's recently-expressed structural bias, Bleuler's functional slants and Meyer and Hoch's perhaps intermediate stand.[6] In this new series there are 25 cases but as exclusion is less rigorously exercised than with the preceding series, the group is a more random and fairer sample of dementia præcox. To clarify matters there are, first, various tabulations as to age at death, duration of symptoms, types of the disorder, brain weights and organ weights. Then each of the cases is described in considerable detail as to clinical and anatomical features, followed by a sufficiently full individual analysis and interpretation.

The "General Discussion" follows. It is pointed out that but two of the 25 cases are without evidence of macroscopic cortical atrophy or anomaly and these two show microscopic changes. Southard goes deeply into Meyer's suggestion of "incidental" lesions in præcox and inquires into the possible maldevelopmental or acquired nature of the lesions here found. He decides that in at least 14, and possibly in 19, of the 25 cases the lesions are congenital and therefore not likely incidental. Later on he suggests that the two processes, congenital and acquired, may go together, the latter growing out of, or being encouraged by, the defective soil of the former.

Southard next proceeds to go into internal hydrocephalus which he detected in one in three cases, thanks to the method of photography. This is a striking, if unaccountable, finding, and incidentally one which Thom remarked in epilepsy. Southard couuld find no relation between this finding and the age of the patient or the duration of symptoms. The patients had been uncommonly catatonic and also rather given to hallucinations. The correlation with brain weights could not be determined, so it may or may not have been due to atrophy. Southard was inclined to think it was acquired.

Although there is more to this second paper, as will be seen in a moment, this is the extent of the phase bearing immediately on the structurality of dementia præcox. Southard's conclusions were, "As to the structurality of dementia præcox the writer feels that the disease must be conceded to be in some sense structural, since at least 90 per cent of all cases examined (50 cases' data of 1910 and 1914) give evidence of general or focal brain atrophy or

aplasia when examined post mortem even without the use of the microscope" (the latter of course increasing the percentage); and, "The writer regards this work as putting the burden of proof on those who claim the essential functionality of dementia præcox and is at some pains to couch objections to one formulation of these changes as 'incidental' and to another as 'agenesic.'" Even so, it must not be supposed that Southard goes to the point where most of us begin, namely, the point of insisting on causes: "This work is rather a study of genesis than of etiology in the sense of modern medical distinctions between these branches of inquiry. It is a modest inquiry into factors and does not rise to the height of ascribing causes."

This then is the crucial conclusion of Southard's intensive and extensive investigation of the functional psychoses and his experience with them. He feels his way further and fills in gaps with many more papers but he never really advances any farther than this point. Clearly the conclusion is in no sense a snap one, nor is it one of many revolutionary conclusions. Whether one agrees or not, it is a conservative proceeding.

But after all is said and done the reliability of the conclusion depends mostly on Southard's personal accuracy and judgment. He was certainly unprejudiced, he had had the best of training, he was experienced and he had catholic interests. Throughout the great volume of his published work a high order of ability is apparent. Personally, I am convinced that he brought special aptitudes to his work. While to most of us brains are as alike as Chinamen, he seemed to possess something of the "photographic mind" which instantly detects slight peculiarities. I still retain a vivid memory of seeing him at his task of examining brains and of noting how unhesitatingly, in the course of the rapid inspection, he pointed out small variations and how confidently, as he rapidly ran his finger tips over the fresh surface, he dictated his impression of differences in resistance. He could discover in brains what Kretschmer perceived in bodies. In this work from beginning to end, from microscope to logic, Southard is at home.

Confirmatory Studies and Considerations.

As a check Southard studies manic-depressive brains in the gross, finding that, "roughly speaking, then, we may think of the

manic-depressive group as exhibiting brain stigmata or focal lesions (not arteriosclerotic) in about one brain in every five, whereas dementia præcox brains show such conditions in about four out of every five brains." [7] Elsewhere he also found, surprisingly, that 18 out of 28 paretic brains displayed "no substantial lesions" (in the gross). From his early experience with non-psychotic brains, he is sure they exhibit no such variations.

But curiously enough, perhaps the chief support of this work of Southard's may come from a chance corroboration of the later and more extreme component of the second paper, now to be taken up. Here he goes much more fully into relating lesions of different parts of the brain to particular symptoms. Thus, frontal lesions are connected with delusions, postcentral and parietal lesions with catatonia and hyperphantasia and temporal lesions with auditory hallucinations. Such suggestions are apparently made in a spirit of supposition for what aid their study may happen to bring back to the main problem and to await later confirmation. A number of further papers to the same purpose appear, but there is reason to believe, in the same tenor. For instance in 1915 we find this qualification, "Whether or not my special contentions are in detail correct (notably my correlations between 'visuopsychic' tissue gliosis and visual hallucinations and between gliosis of an area related to complex kinesthesia and the symptom known as catatonia)," etc.

Although these correlations are in line with some of Kraepelin's and Alzheimer's, they will doubtless strike many as sufficiently startling. Yet a certain corroboration has since appeared in a form of which Southard could not have dreamed. For instance, as all neurologists know, the original type of epidemic encephalitis, which was just beginning in Southard's later years and which perhaps caused his death, displayed a remarkable capacity to pick out and attack functions and parts of functions. Examples are the spasm of the eyes, the compulsive protruding of the tongue, the many varieties of respiratory spasm, the many kinds of tics, localized tremors, torsions, choreas, myclonias, convulsions, peripheral neuritis, optic neuritis and many others. An equal selectivity was manifested in the mental sphere, so that one encountered examples, or suggestively close imitations, of compulsions, obsessions, anxiety states, mania, depression, retardation, blocking, complexes, im-

pulsiveness and catatonia. And the little outlaws of post-encephalitic children possessed the irresponsibility, irrational tendencies and general background of the psychotic adult. Southard seemed to have a premonition of these events in 1917 when he wrote: "Disregarding the truth or falsity of the Freudian contentions, it is clear that his followers are engaged much more in finding satisfactory categories of a logical nature in which to place globar tendencies shown by their patients than they are in conceiving the brain functional lines along which an hysterical dissociation might proceed, a repression be mechanized or a censor be enthroned." At any rate, there is a close parallel between Southard's contentions and these products of encephalitis and it may be said that whether or not his conclusions are proved, they at least *could be true*.

He now launches into a search for normal-looking brains, "to isolate if I could a number of convincing examples of psychoses of definite and relatively permanent nature, in which cases pertinent lesions should be absent or negligible." [8] He went over the collections at Worcester, Westborough and Boston State, hundreds of brains which had been described by unusually competent pathologists such as Adolf Meyer, Orton, Fuller and Canavan. It became evident that different pathologists had widely divergent standards of normality and closer study greatly reduced the original proportion of normal brains. What gross observations did not exclude, the microscope generally did. "Accordingly it is plain that the search for functional psychoses which shall be above all neuropathological reproach is an exceedingly elusive task and probably never to be rewarded."

Such expeditions to large collections of material were possible and the volume of study about to be noticed, practicable along with Southard's multifarious other duties, by virtue of the peculiar situation existing in Massachussetts at the time. Probably no such resources and opportunities were to be found elsewhere. Many of the laboratories had first-rate pathologists with plenty of assistance and with a tradition of thorough work, to say nothing of clinical staffs. Case histories and autopsy protocols were full and reliable, the autopsy material was preserved and often many sections from each brain were routinely prepared. At Danvers an elaborate cross-index of symptoms and lesions had been made under Southard's

stimulation and through the insight of Dr. Page, the superintendent. All these facilities were open to Southard as state pathologist and he did not hesitate to make use of them.

Continuation Studies.

Southard's studies on the decade of onset in relation to symptoms and pigmentary deposits are completed in two papers with Bond, the first taking up the fifth decade and the second, the second decade.[9] The former group of cases seemed to belong with the manic-depressives but were much given to melancholy delusions and hallucinations. Pigments were increased not only in the neuroglia, where they have been found to vary with age, but in the nerve cells and perivascular spaces; but pigmentation did not imply brain atrophy. The latter group was divided between præcox and manic-depressive, the manic-depressives showing the more pigment. There was therefore some evidence that manic-depressive psychosis is a metabolic disorder as contrasted to the destructive præcox.

Microscopic Analysis of Dementia Præcox Brains.

Southard (with Canavan) also carried on a series of extremely onerous, tedious and technical studies on the details of microscopic changes in psychotic brains, which were mostly published in the Transactions of the Association of American Physicians for the years 1914, 1915, 1916, 1917. He characterizes these as studies in "microlocalization." In the first, he brings out the differential resistiveness of "psychic" and "sensory" cortical tissues to the attacks of noxious agents. In the case of the visuopsychic and visuosensory areas these differences could be observed on a single slide and hence under identical conditions and it was found that the former succumbed when the latter did not. Here was certainly an opening for research—in fact the paper is an early contribution to the selectivity of nerve poisons which has been much studied since that time. In the next paper the idea of differential "survival value" of cortical tissues is pushed further and the suggestion made that nerve cells be classified on this basis. The functional reaction to the simplification of structure through the action of disease is also discussed as an interesting field of

research. Incidentally, it is of interest that he mentions and apparently rejects the abiotrophy of Gowers as a noxious principle.

In the 1915 paper the contrast between parenchymatous and interstitial tissue reactions is investigated on the famous five brains from the Boston State Hospital which had failed to display any adequate gross or microscopical findings. The studies were most exhaustive, a eugenics worker even being sent out to gather data in that direction. And changes in abundance were ultimately found. Sometimes it was the cells that were chiefly affected and sometimes the neuroglia. There was no constant relation between the lesions of the two elements. A difference between manic-depressive and dementia præcox responses also seemed evident. An analogy was drawn between these findings and parenchymatous and interstitial nephritis.

Here we may interpose a paper (with Canavan) published in the *Journal of Nervous and Mental Diseases* (1917, XLV, 97) in which Southard finally consents to take up the stratigraphic idea regardless of the topographic findings, as seen in four of the same five cases. It will be remembered that Alzheimer and Kraepelin had previously worked along this line and had related the lower cortical layer (the "infracortex") when diseased, with catatonia and hallucinosis and the upper cortical layers (the "supracortex") with abstraction and, when diseased, with mental dissociation and schizophrenia. Southard's studies in general seemed to confirm these conclusions.

The 1917 paper is to a degree a valedictory to all of Southard's microscopic work on the functional psychoses, and should be read as a summary and coordination of his findings and conclusions in this field. A statement in one of the papers qualifies all this work as follows: "I conceive that no brains of normal non-psychotic patients have so far been examined with equal thoroughness." Had he lived controls undoubtedly would have been run. We must realize how short was the period—little more than five years—in which Southard was relatively free for consistent application to such work.

Causes.

Southard never ventured far into causation, but in a few papers he, at least inferentially, tested out some possible causes. We have

seen that in connection with aplasias and atrophies he referred to (a "suspicion" of) a maldevelopmental factor or an acquired process grounded in a congenital weakness. In another place he says that infection should not be lightly thrown away, although this could not be of "any known kind." Still again he mentions Kraepelin's metabolic autointoxication and to this adds the possibility of an endocrine toxin. Some of these possibilities are apparently being traced further in the following investigations.

An article with Canavan takes up tuberculosis in its relation to dementia præcox.[10] Obviously the interrelations, if any, between two such prevalent conditions need to be known. But Southard found none of importance. In two groups, one of patients dying of tuberculosis and one of those without trace of it post mortem, some of the most characteristic symptoms of præcox were found in both and dementia and delusions were about equal in the two. Tuberculosis seemed to give dementia præcox a manic-depressive coloring.

The subject of bacterial infection both as a terminal and as an earlier influence is approached in four laborious researches (with Gay and Canavan) into the lymphatic and blood pathways between the thoracic, abdominal and pelvic viscera and the spinal contents.[11] The incidental conclusions are too numerous to mention but that such pathways are open, under certain conditions, seemed to be indicated. In these researches Southard at least attempted to convert vague theories of autointoxication into some sort of tangible terms.

Inborn factors are investigated in a characteristically novel way by a search for eugenic and cacogenic nests in Massachusetts, the results being published in two papers.[12] Dr. Copp had said that insanity was not increasing although admission rates were, but Southard wondered if eugenic and cacogenic forces were not neutralizing each other in the statistics. One finding was that mental disturbance, social defection and physical disease run together and another finding was that there was in all likelihood a focal distribution of insanity in Massachusetts.

Other papers touched on the effects of kidney disease and somatic neoplasms on mental symptoms.[13] Kidney disease seemed to produce an unpleasant coloring to delusions, supporting Southard's idea that disease below the diaphragm is accompanied by an un-

pleasant emotional tone. In the other paper it was concluded that "certain mental symptoms may be altered by carcinoma." In other researches the kidneys and spleen in mental cases were examined. That such superficial influences, when investigated might conceivably uncover deeper ones cannot be denied. "Seek and ye shall find."

The Optic Thalamus in Psychiatry.

It is a question in how far and in what way Southard considered the cortical studies significant for the problems of mental disease. This sentence occurs in the last of the microscopic articles: "I would regard all gliosis as merely indicating and not defining the type of cortical disease in question and I should regard the nerve cell losses or other changes likewise as nothing but indicators that something or other is going forward in the injured tissue." He was apparently still orienting himself, as in various relations he often says he is doing, so he may have had no settled impressions at all. At least he owes the cortex no ineradicable obligation, for he early begins to cast inquiring eyes toward the base—a turn of events that may prove to be one of his most happy inspirations. Since we have had Dandy's massive excisions of brain tissue for the removal of tumor to draw upon, we know that about four-fifths of the cortex with underlying tissues can be removed in large blocks without interfering with mental activity to an extent apparent upon superficial observation. (Here, incidentally, is the answer to Southard's great question of how little brain machinery will serve for speech and thought.) It may be that the tyranny of the cortex over the minds of scientists is about to end and that Southard was one of the first revolutionaries. Back in 1906 he had stated that it was folly to think of epilepsy as capable of originating only in the cortex; later he had found that amnesia and dementia were not related to the cortical exudate or atrophy in paresis and had wondered where these symptoms came from.

In 1914 he devotes an article to thalamic participation in mental disorder and Dr. Morse follows with a paper on the microscopic study of the thalamus in dementia præcox.[14-15] Southard's paper is modest enough. He simply went over the Danvers index for diffuse thalamic lesions and then correlated the symptoms. Practically every one of the 25 cases was characterized by mania or at

least hyperkinesia or hyperactivity often complicated by overt acts. The percentage was impressive—Southard said it could not be accidental. He remarks that the thalamus has been almost altogether neglected in psychiatric research and mentions plans for an elaborate study of this organ. Dr. Morse's microscopic study was brief and on limited material but was carefully done and with controls. Her findings as to gliosis of the thalamus in dementia præcox are equally convincing.

One feels that it was only lack of time or opportunity that kept Southard from following up fully these impressive results. He often said that good might result if a trained neurologist with his peculiar knowledge and insight would go into psychiatry. No one would care to predict where the fundamental changes in mental disorder and epilepsy, if such exist, will be found; but the occurrence of the thalamic emotional syndrome, the coexistence of such mental and motor disturbances as occur in Huntington's chorea, and the mental symptoms of epidemic encephalitis which chiefly involves the base, all point to the basal nuclei as still a promising field for research.

Epilepsy.

Southard's work on epilepsy was not extensive but he never quite lost sight of the subject and the contributions he made were novel and stimulating. A case report of late epilepsy in 1906 contains the sentence: "Fuller consideration of numerous points in the history of work on epilepsy will show that the disease is more than one of cerebral cortical physiology." [16] In this report the almost forgotten matter of Brown-Sequard's "epilepsy" in guinea pigs is brought up, showing how familiar he was with the literature.

In 1908 he comes forth with his paper on the mechanism of gliosis in acquired epilepsy.[17] There is a full and close analysis of the problems of epilepsy from all standpoints, but in this analysis no very positive inferences can be made out. Southard seems to feel that Jackson's levels of discharge should be kept in mind although not accepted blindly. Some very elucidating cases which support the Ammon's horn conception are reported and there is reference to the prospects possibly existing in the archipallium. On the anatomical side Southard would look for gliosis in some selected area and on the physiological side he would expect the discharge to be

a release of lower from the inhibiting action of higher centers. Epilepsy he regards as perhaps a hyperkinesia along with mania, both possibly being release phenomena as a result of "simplification" (perhaps in the sensory system) through disease or as a result of neurogliar pressure effects. But the cortex is postulated as the most promising site in which to search for changes.

Another study (with Thom, 1915) was a search for normal brains after the fashion pursued with the psychopathic conditions.[18] In the Monson State Hospital material, 129 brains were found to be definitely abnormal macroscopically and 76 normal; but eliminating those in which feeble mindedness, dementia and various acute conditions had existed, only six brains of what might be truly idiopathic epilepsy remained. These six brains were set aside for intensive study but this study was never carried out in the few years left to Southard.

Thom later went over 75 cases grossly and made the surprising discovery that over half showed dilation of the ventricles, some to a marked degree.[19] This brings up again the question of internal hydrocephalus in psychopathic conditions as one requiring elucidation. First Dr. Taft and then the present writer were assigned the task of investigating the spectacular Brown-Sequard's "epilepsy" of guinea pigs.[20-21] The seizures in this condition appeared to be a composite of the scratch reflexes of the two sides occurring at the same instant. Under certain exciting but physiological conditions, the centers subserving these reflexes apparently break loose from higher control and respond wildly, thus producing the "seizure" of the so-called epilepsy. The phenomenon may indeed be a duplication of what happens in human epilepsy; at least, it appears to be in line with Southard's notion of the physiology of this condition.

Southard's researches on epilepsy are therefore limited but promising. The most recent idea of epilepsy supposes the discharge to be one of extrapyramidal variety along with tremor, chorea, torsion spasm and myoclonus and hence places the seat of the underlying changes somewhere among the basal grey masses.[22] Thus myoclonus epilepsy becomes the key condition which by exhibiting both myoclonus and seizures unlocks the door to the latter. This view is allowed for, if not actually forecasted, in several of Southard's statements.

Concluding Remarks.

In later years, Southard turned from pathology to social service, psychology and classification but this change of emphasis is probably due less to a shifting of interest than to necessity; for the war had disarranged his Massachusetts system and in addition a craze for efficiency had taken hold of the state, sacrificing research, medical standards and all values that could not be put into columns of figures. But if Southard could not work on one phase, he would not remain idle.

His contributions to psychology cannot be considered here. It may be said, however, that although no Freudian, he repeatedly stated that psychology has its place in the sun and that its principles still apply even though brain changes be present.

As to his productions on nomenclature, classification and diagnosis—the last considered by Richard Cabot his most fruitful idea for pure medicine—however much he may profess their purpose to be elementary and practical, we may suspect that he has in mind a higher order of thinking concerning the whole subject of mental disorder. In this connection he quotes his old masters James and Royce—James to the effect that "the history of civilization consists in a search for a more inclusive order" and Royce as to "how an organized combination of theory and experience is the higher logic to which the more complicated sciences [psychiatry among others] must resort."

In the end perhaps it may prove to be rational, orderly thinking, rather than any panaceic discovery, which will penetrate the obscurity of mental disorder. At any rate it is eminently fitting that Southard should have been granted the opportunity of completing his science of psychiatry with a philosophy of psychiatry.

Summary and Conclusions.

For many years Dr. Southard directed a mass attack against the obscurities of mental disorder, keeping many research projects under way and contributing an amazing number of papers. His spirit of work was one of open-minded inquiry and his method that of utilizing the many small indications at his command, to erect a logical structure of probabilities. His store of information, his

experience and his peculiar aptitudes give his impressions and conclusions an unusual value.

Southard's conclusion concerning dementia præcox was that it is in some sense structural. Manic-depressive he regarded as more likely a metabolic disturbance. In his cortical studies he laid the basis of accounting for many symptoms as physiological rather than as psychological products. He tested a number of possible causes, such as heredity, tuberculosis, infection and visceral disease, without arriving at a final result. The optic thalamus was found to play a part in mental symptomatology. Some of his findings and conclusions have since received interesting corroboration.

The studies on epilepsy were limited but expose a number of stimulating possibilities. From his analysis he anticipated that the characteristic lesion would be a focal gliosis and the physiological process a release of lower from the inhibiting action of higher centers. Internal hydrocephalus was found to be prevalent in epilepsy. In Brown-Sequard's "epilepsy," the "seizure" appeared to be an uninhibited exhibition of the scratch reflexes. Southard's impressions allow for, if they do not anticipate, some of the most recent ideas.

From Southard's work we of today should learn to appreciate the microscopic, macroscopic and experimental possibilities still remaining in neuropathology and we should derive courage to continue to attack, with some of his spirit, the obscurities of psychiatry.

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DISCUSSION.

DR. HAROLD I. GOSLINE (Ossining, N. Y.).—My only reason for speaking is that I had the privilege of working under Southard for some time as a student. In Danvers State Hospital in Hathorne, Massachusetts, I remember his giving me an assignment of looking over a large mass of material for lesions of the second temporal convolutions; which serves here as an example of his method of working.

He frequently counseled me to get some central notion and then group materials about that. I imagine that the reason that all of us fail very frequently is because the field is so enormous and we do not adopt that method of approach, which should be promoted even today as it was 25 years ago.

I recollect that he found catatonic symptoms in angular gyrus cases, that he also found catatonic symptoms in cerebellar cases. Those things seemed so far apart in those days but now we know that they connect up very closely with all sorts of studies, both on the angular gyrus and on the cerebellum.

I am not sure that I understand the difference between genesis and etiology, but if we take the example of the syphilitic virus, the spirochæte, I think even there we have not yet solved the problem of just how the pathological process produces the mental symptoms, so that it is no reflection on the work of that age that it did not solve those problems. Psychiatry is no farther behind in that particular than any other branch of medicine. I am sure that we do not know how the pathological lesion in the kidney or the conduction bundle in the heart operates to produce the functional changes which we see connected with those anatomical changes. So that in the case of paresis if we find the spirochæte as the sole etiological factor, we still have the problem before us of having to explain how the pathological lesion produces the mental symptom.

One of the major principles that Dr. Southard evolved (and it was mentioned in the paper) was that of hyperkinesis by defect. It seems to me that this is extremely fundamental and a finding of permanent value; it is a finding of general application. It explains many things not only in nervous and mental cases but also in all the other diseases of the body. I think also that, while Southard did not do so much work with criminals, this principle of hyperkinesis by defect explains many of the pieces of conduct of criminals. I think that those fellows are hyperkinetic, that they are without repression. They are hyperkinetic because they are defective not in intelligence necessarily but in some of the other higher functions.

The importance of the base of the brain is now becoming more and more realized, from the work of innumberable men but particularly in the work of Cushing. In one of his most recent books his ablation experiments and his tumor experiments have revealed a perfectly marvelous array of symptoms which have been connected with the base of the brain and which have to do with every system in the body. That was also foreshadowed by Southard.

I think that a piece of work the importance of which is not realized is his work on anaphylaxis. Much of that work has been carried forward by some of Southard's co-workers and today we are beginning to realize that possibly allergy, which is part and parcel of the whole problem of anaphylaxis, may have a large part to play in the development of mental symptoms.

I wish that Southard could have gone forward with his work on bacteriology. His work on the mesenteric glands, it seems to me, is of extreme importance. The organisms which he found and which were thought at that time, if I am not mistaken, to be merely *post mortem* invaders, we may realize today have in some way some etiological connection with some of the conditions with which we deal.

The last theory which I wish to discuss and which Southard advanced was that of the "mind-twist" over the "brain-spot" hypothesis. I think those who have worked with him are quite familiar with that whole notion, epitomizing everything that we see now has come out in the Freudian analyses and in the pathological examinations. The whole thing on either side is summarized and epitomized in those two terse expressions of the "mind-twist" and "brain-spot."

The great thing that I understand that Southard was interested in when he died was an institute in which he could manage a program for the carrying out of his notions. Of course, that died with him.

Dr. Louis A. Lurie (Cincinnati, Ohio).—I think no evaluation of Southard's work is complete without mention of his interest in social psychiatry. I was one of those privileged to work under him and I know how he stressed the social approach to the study of the psychoses and psychoneuroses. I think that he, more than any one man in this country, is responsible for the great interest in that particular approach to the study of the psychoses and psychoneuroses. I know that various men who have gone out through the country and whose work today orients us in our approach to the study of psychiatry owe their points of view to the influence exerted by Dr. Southard.

Our whole approach today, the so-called psychobiological approach, started with Southard's interest and knowledge of the importance of the environmental influences in the genesis or in the causation of psychopathic conditions.

PSYCHOLOGICAL MEDICINE AS PRACTICED BY THE QUACK.*

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Just as quackery is as old as medicine itself, so psychological quackery has paralleled the rise of psychology and the development of psychiatry. Perhaps no other phase of quackery offers so interesting a study in personalities, methods and subject matter. In spite of this, such studies are singularly lacking in the literature. The material in this report is based upon the activities of some of the irregular practitioners of medicine who have made their appearance in a western city during the past six years. We have particular reference to the food faddist, "yogi," faith healer, "practical psychologist" and the so-called psychoanalyst. We are not concerned here with other unscientific practitioners of medicine such as the chiropractor, the Divine Science healer, the Christian Science practitioner and other individuals in allied fields who form a permanent part of the community. Neither are we concerned with the recent and widespread form of quackery presented through the radio.

The general procedure employed by the visiting quacks is essentially the same. They engage an auditorium in some church, hotel, club or theatre, and advertise a series of from six to twelve free public lectures. These lectures bear attractive titles such as: "How to Get Rid of Disease," "How to Get the Habit of Happiness," "How to Get Your Prayers Answered," "The Crime of Inferiority," "Making Good at Any Age," "Permanent Happiness in Courtship and Marriage," "What Every Woman Wants to Know," and "Psychoanalysis, the Science that Makes Psychol-

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

ogy Work." A silver offering is always collected at each public lecture, and since tactful emphasis is placed upon the duty and privilege of contributing, a considerable sum must be realized by this method. The series of free lectures is followed by a so-called study course which lasts six or seven evenings and for which the tuition is $25 per individual. The lecturers claim that they will disclose in these courses secrets of living which will cure those who are ill, make successful those who are failures and give happiness to those who are unhappy. If the first series of public and private lectures is successful, another series of free lectures may be offered, and this is followed in turn by the remunerative study course. At both the public and private lectures, numerous books and pamphlets designed to explain and amplify the teachings of the lecturers are offered for sale at what appear to be exorbitant prices. About one-third of this printed literature is concerned with sex. In the case of certain food faddists, so-called special foods are also offered for sale at rates considerably in excess of the market value of similar products. In addition to the sources of income already enumerated, private consultations for the purpose of diagnosis and treatment are accepted by almost all of these quacks.

In general, these quacks have certain attributes in common. Each one annexes a very dignified title to his name, such as expert, professor, lecturer, or educator, and claims to be a scientist who spends the greater portion of his time in research laboratories for the benefit of mankind. He points out that the medical profession has no use for him because he is prepared to disclose "facts" regarding disease. In addition, each one of these lecturers claims that he has cured himself in the past after the medical profession had given him up either to die or to live as a hopeless cripple. Furthermore, it is either intimated or asserted that this method of self-cure is of divine origin. Although each maintains that he is working under the favor of religion or the guidance of God, he is willing to sell his valuable secret of health. He is prepared to sell health to all, regardless of the cause of ill-health, and he offers his quackery as a panacea for all illness, unhappiness and failure. While he attempts to encompass all phases of medicine, he may emphasize either the physical or the mental aspect of health. Among those who emphasize physical health are the food

faddists, and they claim to be able to cure all diseases by the use of certain special foods or the proper combination of ordinary foods. Those who emphasize mental health do not hesitate to include all phases of clinical psychiatry, psychology, mental hygiene and psychoanalysis. They diagnose and even treat all kinds of personality disorders.

Because they are good showmen and have a gift for anecdote, a sense of the dramatic, a knowledge of their audience, an appeal through religion and an ability to speak forcefully, these lecturers are unusually successful in getting and holding large audiences. By the recital of their early struggles and present intimate problems to their audiences, there is established a feeling of rapport, the importance of which scarcely can be over-estimated. The lectures themselves have certain characteristics in common. Although delivered in a convincing manner, they are almost always poorly organized and extremely contradictory. The material presented is repeated in subsequent discussions, and it has little reference to the announced title. The subject of sex receives considerable emphasis. In general, while the subject matter presented may be either worthless or flagrantly untrue, it always contains a certain grain of truth. In our opinion, this bit of truth, this semblance to known facts, this suggestion of scientific inquiry, is exceedingly dangerous. These little bits of truth, which are usually about things with which the members of the audience are familiar, make credible and authoritative the accompanying half-truths and marked falsehoods. In the following discussion, we shall attempt to show briefly the nature of the material presented by the psychological quack.

One of the most rabid lecturers on diet is an alleged professor who is president of the " National Diet and Health Association of America." * He believes that certain foods, such as meat, milk, butter and " demineralized " white bread are dead foods, and that they produce acid and an excess of mucus in the body. This mucus causes tuberculosis, ulcers, cancer, diabetes, colds and asthma. We lose our teeth, become bald and sacrifice our hearing because of improper diet. In addition, improper diet is responsible

* According to information furnished by the Bureau of Investigation of the American Medical Association, this organization exists only on paper. (Dr. Arthur J. Cramp, personal communication.)

for both blindness and loss of sexual potency. To be exact, it is the meat in our diet which changes into uric acid crystals. These crystals have a ground glass appearance and, after entering the blood stream, lodge on the retina and tear it down so that blindness is produced. In much the same fashion, uric acid crystals enter the prostate and destroy it by a grinding process. Regardless of the amount of tissue destruction present, the "professor" guarantees to restore sight and re-establish the "transmission of seminal energy" in individuals who enroll in his study course. Further, he offers to cure almost any disease by the correct use of "live" foods and sunshine. For the benefit of individuals in the audience who wish to treat themselves for any of the above conditions, he sells "100 per cent bran flour," "undemineralized" salt and special "live" foods.

Another "doctor" offers the "greatest message of the age—the discovery of "soul breathing," which removes all pain regardless of its cause or previous duration. We are told that all disease, regardless of its nature, is a fine for disobedience; furthermore, it is the penalty of incorrect diet and is paid for with headaches, constipation and pain. In order to gain the knowledge how to live, we should join her class in which she will discuss not only foods which will promote health and prevent disease but the methods of becoming happy, self-confident and successful. Furthermore, through "soul breathing," she offers to cure any pain in ten minutes, but she confesses that it is really not she but God who cures the individual.

The classification of personalities, either on a psychological basis as proposed by Jung [1] or on a physical basis as suggested by Kretschmer,[2] has proved to be a rich source of material for the quacks. They classify all humanity into various types, and they allocate to these types characteristics, predilections for disease and suitabilities for certain occupations. They claim to be able to analyze individuals and to treat them for social inadequacy, sexual unhappiness, business failure, physical debility or mental illness. This treatment consists in altering or completely changing the "patient's" type either through physical means such as diet, or through psychological processes such as "practical psychology," "psychoanalysis," or "character analysis."

As an example of the above-mentioned attempt to classify persons, three * of the quacks included in this report divided individuals into different chemical types. A person's type is supposedly determined by his characteristic ash, of which there are 16 kinds: calcium, carbon, chlorine, fluorine, hydrogen, iodine, iron, magnesium, manganese, nitrogen, oxygen, phosophorus, potassium, silicon, sodium and sulphur. Not only does this predominant element determine the nature of a person, but it also defines the chemical type that he should marry, and even predisposes him to certain disease tendencies. To combat these disease tendencies and to insure a satisfactory life, various foods, supposedly rich in certain elements, are recommended for the different types. Let us consider a few of these chemical types.

The calcium type is purported to be the strongest of all the types, and the element, calcium, so predominates throughout the body of such an individual that it influences his very thought, feeling and movement. It may direct him into a trade or profession concerned with hard substances such as steel, rock or soil. The majority of these individuals are men who are intellectual, emotionally stable and physically well-built. They are indefatigable workers and make good pioneers. This type craves calcium-containing foods, but an excess of these substances is undesirable, since too much calcium causes the bones to become stiff. Other pathological conditions to which this type is subject are hardening of the arteries, paralysis and rheumatism. These diseases are prevented by foods rich in sodium and magnesium. Should two individuals of the pure calcium type marry, most of their children will be idiots. A marked contrast to the calcium type is that of sulphur. This element causes the expression of moods, and it is found predominately in women. Many actresses and some actors belong to this type. It is characterized by an artistic and cultured nature coupled with impulsiveness, spontaneity and inconstancy. Sulphur in the body promotes physical beauty of all kinds together with a charming manner and an agreeable disposition. In spite of these desirable

* It is interesting to note that several of the quacks included in this report tended to follow essentially the same set of fallacious ideas, and this was especially true in relation to the so-called chemical analysis of types. It is unknown whether these lecturers all rely on a common source of misinformation or whether they copy from each other, but we have access to a pamphlet which seems to indicate a common source of knowledge.

qualities, this type is subject to moods of irritability. These moods are caused by an accumulation of sulphurous fumes which find their outlet in mental explosions. Persons of this type may suffer from nervous, circulatory and digestive diseases. They require an abundance of fresh air and foods rich in manganese, magnesium, oxygen, potassium and sodium. The oxygen type will attract any other type because of the affinity of oxygen for other chemicals. If oxygen is deficient in an individual, his personal magnetism will be lacking. As a result, such an individual both displays a judgment defect and loses his sexual potency. On the other hand, an individual of the oxygen type is usually lacking in self-control and this may also lead to impotency. The nitrogen type is characterized by reserve and dignity; it is the direct opposite of the oxygen type. A lack of nitrogen predisposes the individual to diseases of the eyes and ears, to neuralgia of the head and face, to fevers, to rheumatism and to infections. Operations are always dangerous for this type since the tissues are weakened by an excess of nitrogen and a resultant deficiency of oxygen. A man of the fluorine type is obsessed with sex and, because of this, hypnotizes girls and women for illicit purposes. According to one lecturer, many of our best doctors and lawyers belong to this type. The lack of sodium in the body affects the lungs, the heart, the brain and the glands of internal secretion. Moreover, the deficiency of this element leads to a morbid interest in poison and hypnotism and may predestine one to become a criminal, a sexual degenerate or an alcoholic.

Another "doctor" classifies individuals on the basis of their bodily and facial structures into the osseous, thoracic, muscular, "alimentive," or cerebral type. Since one's personality is determined by his type, his character may be read at sight by an individual conversant with the different types. Some of the misconceptions presented in the study course which claims to impart the knowledge of the above-mentioned types may be considered briefly.

The osseous type is represented by the thin individual with large finger tips, narrow head and long oval face with high cheek bones and thin lips. Unless he is careful with his diet, such an individual tends to develop "articular rheumatism." He is characteristically slow, dependable, thorough, honest, unemotional, retiring, miserly and suspicious; these qualities enable him to be a success in the

occupations of farming, lumbering, fishing, bookkeeping, accounting, auditing and in pioneering work of all kinds. The thoracic type is one of the most handsome of individuals and is characterized by an oval face and beautiful hair, features and complexion. The men of this type are deep-chested; the women are long-waisted. Although all of them are inclined to be of a nervous, high-strung temperament, they have no special predisposition to disease. While they are discriminating, friendly and æsthetic, they may also be unstable, deficient in financial intuition and demanding of approbation and applause. The above characteristics enable them to excel in drama, art, music, dancing and in the teaching of these professions. Further, they make good salesmen, advertisers, promoters, agents and guides. The muscular type has square shoulders, square face, square jaw, square head and "square disposition." He is usually free from disease and is energetic, practical, athletic, generous, enthusiastic and of high moral character. In addition to being an ideal engineer, executive, athlete or teacher, he excels as a lawyer, salesman, advertiser, writer or surgeon. The individual with round shoulders, round face, round head and bulging waist line typifies the "alimentive" group. He knows good food and turns everything he eats into fat. Since this fat cushions his nervous system, it protects him from nervousness. Because of his dietary habits, an individual of this type dies of diabetes, high blood pressure, heart trouble, apoplexy, acute indigestion or any other condition which arises from overeating. Although he is selfish, he is usually popular, and is a successful executive, promoter, politician, salesman, manager, chef or financier. The mental or cerebral type is distinguished by its large head and small body. The head is triangular, the voice high pitched, the walk jerky, the movements nervous, the hair soft and fine and the features delicate. An individual of this type is subject to "nervous breakdowns" because of his delicate digestive system and lack of vitality. Often these individuals starve either because they cannot earn enough for a living, or because they become too preoccupied to eat. Persons of this type have the sensitive nature of a dreamer, and this disposition predestines them for such vocations as those of writer, teacher, bookkeeper, accountant, librarian and philosopher. In the event that any person may not have been included in the above classification, his character may be read on the basis of

his complexion. If a blond, he is aggressive, daring, unscrupulous, reckless, impulsive, courageous and interested in new and practical things; if a brunette, he is kind, thoughtful, submissive, capable, patient, cautious, introspective and poetical.

We may now turn our attention to those phases of the lectures concerned especially with "psychology" and "psychoanalysis." The outline used in a study course on "practical psychology" discusses glibly such mental mechanisms and attributes as complexes, mental force, over compensations, magnetism, suggestion, neurasthenia, phantasy, positive and negative types of feelings, self-confidence and the mind. We shall consider briefly some of these as they are defined in the course. Neurasthenia is a characteristically American disease which results from "allowing things to get on your nerves," "minding other people's business," or getting into strong sunshine. Phantasy is the "undoing of thinking," or it is the result of considering two thoughts simultaneously. Feelings may be positive or negative, and the positive feelings of joy, self-confidence, hope, love, faith and ambition should be imprinted upon the very cell structure, instead of the negative feelings of sorrow, self-effacement, despair, hate, cynicism and lack of ambition. Self-confidence, which is the reflection of the subconscious mind, is possible only if at least one third of the intestinal tract is clean. This self-confidence may be procured by contacting the subconscious mind through enemas, "which are the language of the intestines." The mind consists of three phases: subjectiveness, consciousness and subconsciousness. The subjective mind is related to will; the conscious mind, to thought; the subconscious mind, to emotion. The subconscious mind was later stated to be the store house of power, strength, feeling, memory and "the sum of intelligence of all of the cells of the body." Minds are characterized by the predominance of one of the above phases, and individuals should attempt to develop those phases of the mind in which they are deficient.

Following the above-mentioned lectures and study course on "practical psychology," this quack gave two series of lectures, each succeeded by a study course, on "psychoanalysis." According to her teachings, impressions are placed upon the consciousness of an individual, and these so-called pictures on the mind are the basis of one's mental and emotional equipment. Desirable pictures

on the mind make it possible for one to have, to do, and to be anything which he wishes. On the other hand, undesirable pictures result in unhappiness, ill health and failure. Some or all of these undesirable pictures form complexes which appear to be abnormal emotional patterns. These may express themselves chiefly as sex complexes and as "voluntary or involuntary poverty complexes." Sex complexes are responsible for personal peculiarity and for sexual maladjustment. Poverty complexes are the basis of an inability to succeed in business or finance. While most complexes disappear without treatment in 25 years, it is necessary to remove them before that time if one is to succeed in any phase of his life. The removal of complexes and the substitution of desirable pictures on the mind for the undesirable ones are made possible only through the application of self-psychoanalysis. This may be mastered supposedly by anyone, but the actual method of psychoanalysis is imparted exclusively in the study course.

A certain "psychoanalyst" illustrates the attempt on the part of these lecturers to include all of medicine in their teachings. In his "Manuscript No. 18, Mysteries of Silicon," he states that this element has a remarkably stimulating effect upon the intellect, and that adequate silicon is needed to carry on mental activity without fatigue. A lack of silicon may result in general depression, severe headaches, poor complexion, loss of hair, sexual impotence, paralysis, "sexual neurasthenia," nervousness, brain diseases, malignancies and "nervous prostration." An excess of this element produces exaggerated ideas, visions and a physical and mental hyperactivity detrimental to health. Further, this excess may lead to abscesses of the bones and inflammation of the upper half of the spine. Those suffering from an oversupply of this element must omit foods rich in silicon and include those abundant in carbon, hydrogen, nitrogen and oxygen; whereas persons deficient in silicon should reverse the therapy just mentioned. In addition, silicon, together with fluorine, sulphur and potassium, is effective in the treatment of severe cases of syphilis and gonorrhea.

A certain Swami, an "educator, Yogi, and metaphysician," blends the fascination of Indian philosophy with practical instructions for the development of the body, mind and soul. His study course announcement contains alleged testimonials and comments from noted persons and important newspapers. The first three

lessons in this course teach the proper exercises whereby one can realize the maximum in physical efficiency. Specifically, these lessons teach one how to make adjustments of cells, muscles, vertebræ, digestive, circulatory and respiratory organs. These adjustments banish fatigue, remove organic defects, prevent disease and produce the highest efficiency of the body. Subsequent lessons instruct in the method of prolonging life by " increasing the restfulness and longevity of the heart " and thus preventing hardening of the arteries and the infirmities of old age. They also give instruction in the method of self-analysis, in the system of scientific healing through the application of spiritual laws, and in the manner of " connecting or disconnecting the mind and nerve energy with the senses, at will."

As a result of such a survey of psychological quackery, three questions arise: (1) What are the factors which make this type of quackery possible? (2) Why is this type of quackery undesirable? (3) What recommendations may be offered for means of combating these practices? Let us consider each of these questions.

What Are the Factors Which Make this Type of Quackery Possible?—Quackery of all kinds, and especially psychological quackery, is possible because it seems to offer a glowing and positive solution to certain fundamental human needs. These needs are the demand for security, the requirement for health and the desire for happiness. The quack guarantees to meet and satisfy each of these. Although these needs are universal, not every one patronizes the quack; therefore, there must be certain types of individuals who make possible his existence. We believe that the clientele of the quack is composed of individuals who are less satisfactorily adjusted to life than is the so-called normal person. We have in mind not only the occasional psychotic individual, but the eccentric, the psychoneurotic and the great group of persons who feel inadequate, inferior and insecure. Many of these latter are seeking an easy, utopian solution for their problems. There may be included also those individuals who have had unfortunate experiences with the medical profession, and, in addition, those persons who have consulted with little or no satisfaction an ever-increasing number of doctors. Further, it is probable that no small number of individuals who patronize lectures on quackery hope to obtain free medical information and to treat themselves as a result.

In addition, psychological quackery is possible because of the present widespread interest in science. People are impressed with the advances which have been gained through the scientific approach, but since they lack the proper prospective and background to determine what constitutes science, they attribute almost magical properties to anything labeled " scientific." Closely related to this interest in science is a constant and almost morbid curiosity regarding medical information. It is quackery which has taken advantage of this popular curiosity, since medicine does not lend itself readily to accurate simplification.

Why is This Type of Quackery Undesirable?—In our opinion, it is undesirable for three reasons. In the first place, much of the material presented is misleading, unscientific and untrue. Falsification and distortion of facts are always dangerous, and this is true especially in matters relating to health. In almost no other field does an erroneous idea have potentially so far-reaching an effect as in the realm of medicine, and it can be seen from the above presentation that the lectures, study courses and consultations may be a rich source of misconception. In addition to being actually harmful in some instances, these misconceptions are undesirable in probably a far greater number of cases because of the effect which they may have upon an individual's attitude toward other persons and toward life in general. One's thinking would be strangely biased, and one's emotional reactions might be peculiarly distorted if he adhered to any of the groups of ideas presented by these lecturers. This state of affairs is probably of especial importance in the realm of sex. Because of the semi-mysticism which still surrounds the matter of sex, it is difficult for the lay individual to obtain authoritative information on this subject. The extent to which psychological quackery confuses an already muddled subject and contributes to maladjustments in unstable individuals cannot be estimated.

In the second place, this type of quackery is undesirable because it engenders a false sense of security and arouses a spurious hope for the relief and cure of disease. Individuals with mental or emotional problems will rationalize their difficulties on some basis suggested by the lecturer, and, instead of making an effort to solve their problems by means of accepted psychiatric practices, will seek an artificial remedy through diet, so-called psychoanalysis

or other questionable procedures. Many of these maladjusted persons may employ the treatment of the quack in the belief that they are receiving genuine help; few, if any, of them will be benefited by the fallacious psychotherapy which they receive. Individuals affected with physical disease may attempt to treat themselves, or they may submit to treatment by the quack. While in many cases the results may be harmless, in others they are probably actually detrimental. In all cases of both mental and physical disease, the opportunity for correct diagnosis and scientific treatment is postponed, perhaps dangerously so.

In the third place, this type of quackery is undesirable, since it draws the patient away from the doctor, and since it deliberately casts suspicion upon the ability and knowledge of the medical profession. Doubt is recurrently expressed by the quack that the medical man could effectively aid individuals in the audience who need help. It is alleged that he does not have access to or refuses to avail himself of the knowledge possessed by the quack. While the nature of the attack on the medical profession may not be direct, it is invidious and continuous. This attack may have little or no ultimate effect upon the economic status of physicians, but it undoubtedly has a detrimental effect upon the esteem with which the profession is regarded.

What Recommendations May Be Offered for Means of Combating These Practices?—Since quackery is so vitally related to the medical profession in that it establishes erroneous ideas regarding health and draws the patient away from the doctor, what substitute has the profession to offer? We criticize the quack for his methods; yet the medical profession is to blame to a certain extent for his existence. People believe the falsehoods of the quack because there are few means other than that of direct consultation with the doctor to counteract these beliefs. We feel that individuals would accept the correct ideas regarding health if they were given the opportunity. We appreciate that such a complicated subject as medicine does not lend itself readily to simplification; yet some means should be devised to combat the fallacious statements of the quack. Since the public is interested in matters relating to health, as we have pointed out, we feel that it is the responsibility of the medical profession to guide this interest along correct channels. We propose specific recommendations with hesi-

tation because of the magnitude of the problem. Nevertheless, we make the three following suggestions:

First, we recommend that, in spite of the attendant difficulties, each county medical society accept the challenge of the quack and offer to the general public instruction in the fundamentals of physical and mental health. This educational program should be supervised by the organized medical profession and integrated through such organizations, societies and institutions as medical schools, parent-teacher groups, civic clubs of all description, schools, churches, libraries and any other organizations allied with education.

Second, we recommend that each city establish a board of physicians to examine the credentials of any lecturer claiming the ability to heal disease irrespective of its nature. Government has long recognized as a necessary safeguard to the public the importance of licensing individuals in many trades and professions. We see no reason why the quack should be allowed to practice without restriction.

Third, we recommend that The American Psychiatric Association, through one of its standing committees, conduct investigations along the lines indicated in this survey. The report of this committee would reflect somewhat the national scope of this problem and would be valuable in furnishing knowledge which could be used as a basis for combating psychological quackery.

NOTE.—It is interesting to note that last evening's paper carried an account of the prosecution here in Washington of one of the persons reported upon in this paper. He was fined one hundred dollars for activity similar to that which we had observed. I telephoned the judge in the case, and he outlined the law under which these psychological quacks can be prosecuted. Persons who come here and deliver lectures upon the healing art can be apprehended and fined if they do not have the proper qualifications. This law has been in force since 1929 and is executed by the public health officer of the District of Columbia. It is rather interesting that this quack whose activities we have followed around the country for the last six years should come to Washington and be fined just before we presented this paper.

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PHYSICAL THERAPY IN A MENTAL HOSPITAL.*

By RICHARD H. HUTCHINGS, JR., M. D.

That physical therapy is now a recognized branch of medicine is a definite conclusion, especially so since the establishment of the Council of Physical Therapy by the A. M. A. in 1926. Its functions have been to standardize apparatus by research, to evaluate various types and makes of equipment, and to publish its findings in the JOURNAL to give necessary publicity to the work.

The council is divided into various committees which investigate their own particular branches of the art. The Committee on Radiation, for instance, has studied the various types of radiations of the electro-magnetic spectrum, from infra-red lamps to x-rays and radium, including the transmission of the ultra-violet rays from sunlight through the various substitutes for window glass on the market. After five years of study, it has been definitely concluded that ultra-violet has a prophylactic and curative effect on rickets, infantile tetany, spasmophilia. General radiation of the nude body of the expectant or nursing mother has a definite preventive effect against rickets and other calcium deficiencies. Its other fundamental effects have not as yet been fully explored or specified. It seems that there is good clinical evidence of its value in various forms of tuberculosis other than pulmonary, but the precise rôle of the rays in this case has not been clearly determined. They are also of value in certain of the dermatoses and cutaneous disorders. The council is making an effort to control the advertising and sale of apparatus and equipment, including radium and radon, in order to eliminate the inadequacies and dangers of advertising in renting or selling these products. During the past seven years, considerable study has been made of diathermy and diathermy machines. It has been admitted that this is an excellent form of producing heat, and the committee feels that it can be used to advantage in many conditions. However,

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

the control of heat to a given area inside the body has not been standardized, and further investigation is in progress at the present time. It is believed that persistent and prolonged effort must be made to eradicate the abuse of physical therapy. A physician who has installed only a diathermy machine or an ultra-violet ray generator, while he may do good in carefully selected cases, is not fully equipped to render physical therapy. Physical agencies should not be used on the theory that they will do no harm and may do some good. Many unfounded claims are made by manufacturers and salesmen absolutely untrained in medical science, particularly emphasizing the money-making powers of their brand of equipment. It is generally acknowledged by all that physical therapy is at present in a transitional stage; that its use is extending; that certain selected combinations are of greater value than any particular measure alone, and that better functional results are obtained when patients are properly treated by physical measures than when left to their own devices in securing restoration of function. The council also feels that increased education in the medical schools on the subject of physical measures should be given and especially should there be post-graduate instruction.

The increasing number of laity, friends and relatives of our patients, that ask about the possibility of such treatments being received by patients indicates the wide-spread interest of the general public in these measures. That much misinformation has been spread and that considerable harm has been done by over-enthusiasm and unsubstantiated claims goes without saying. The swing of the pendulum now seems to be backward to a more rational viewpoint based on facts. Somatic disorders are concomitant with psychic disturbances to a great extent, as evidenced by the annual reports of many psychiatric institutions. From 40 annual reports of mental hospitals outside of the State of New York, eight indicate treatments of physical disorders. Of 34 reports of mental hospitals within the State of New York, 26 report treatment of physical disorders by physical therapy. These facts, together with an almost repeated expression of the increase in the numbers of patients treated each year, point to an ever-increasing realization of the need of a physical therapy department in a mental hospital. Physical therapy is not a panacea for all human ills, but it has

become one of a triad with medicine and surgery and has much to offer in amplifying and supplementing both.

A well-organized physical therapy unit in a mental hospital should be situated so as to be easily accessible to all other components of the group, bearing in mind that stretchers and wheel chairs are frequently required to convey the clientele. Usually some vacated basement rooms are the first thought, which should never receive consideration.

If we are practicing therapy, one of the fundamentals is good physical hygiene; not found in dark and damp basements. We must instill this in the minds of our patients by precept, by a light, airy, fresh smelling department, not forgetting that expensive equipment is ruined by dampness and lack of ventilation.

With the most perfect layout, however, little can be accomplished in this form of treatment without a well trained technician in charge of the department. Even his best efforts are frustrated and the department becomes inefficient without an interested physician whose knowledge and comprehension of the subject make him the logical person to be the director of this unit.

In nearly every institution there is an assistant physician who is mechanically or electrically inclined, or who is already connected with the x-ray department and is the hospital radiologist. Such a man if he is given the opportunity and a little encouragement makes the ideal individual to be especially trained to become a physical therapist. To begin with he can obtain one or two general books on the subject, which will stimulate his interest in the various modalities and types of apparatus. With this little knowledge, he can then spend a week in one of the hospitals in which a fully equipped department is already functioning. Here he can gain a more complete idea of the important points in technique and prescription; what should be read further in the literature in order to help him more thoroughly understand the fundamentals underlying the physiological changes to the various modalities. With the assistance of his superintendent and steward, he can then begin a department with one or two pieces of apparatus, bearing in mind that the future will show a marked growth in the number of cases treated and the number of pieces of apparatus used. By subscribing to one of the monthly journals of this specialty, by joining one of the physical therapy societies, and attending the

meetings and conventions, he will in the course of a year find that he has a fair working knowledge which he should constantly endeavor to improve.

Some of the medical schools are giving three to six weeks post graduate courses. While these are frankly makeshifts, they do serve to show the would-be physical therapist the breadth of the subject. The one or two weeks courses, reeking with commercialism, which are frequently offered by the various manufacturers, are not to be countenanced by the reputable physician. Such an intricate subject requires more study than a saleman's assertion that the snapping of a switch will definitely assuage any pathological change.

As the head of a physical therapy department then he will not only diagnose and personally prescribe for each case, but will check the changes in pathology and represcribe if necessary. To facilitate this, a special form has been devised for the purpose of record, on which these facts should be entered. Also is noted not only the date of each treatment given, but the initial of the aide giving it. When a red line is crossed, it indicates to the aide that the case should be again presented to the director.

The application of the various modalities of physical therapy is a science that can be learned by an intelligent person. He then becomes a technician or physical therapy aide. The prescription, designed to initiate, accelerate, retard or neutralize various reactions of the human body, is based on knowledge that only a physician may have. This is an art. This is mentioned particularly to call attention to the practice that exists in some departments where no physician is detailed and where the diagnosis, prescription and treatment, to say nothing of the ultimate condition on discharge, are left entirely to the discretion of a technician who is frequently not a registered technician at that.

The matter of diagnosis is so important that in our hospital if there is the slightest question on the part of the hospital physicians, we call upon the visiting staff for diagnosis in their various specialties. Self diagnosis and treatment is as harmful in physical therapy as in drug therapy. Even if no direct harm be done, an incipient treatable case may run along until the opportunity to treat successfully is passed.

The type of equipment used varies in different hospitals, but from the annual reports of the treatments given, it seems that the long wave ultra-violet used for tonic effects is the one in most constant demand. Following this are the various types of heat, beginning with diathermy, then infra-red and carbon arc. Next in frequency the Kromayer lamp or water cooled ultra-violet is used, for its intensely stimulating effects and for orificial work. Eliminative and sedative hydrotherapy, and particularly the whirlpool bath, are next in order of use. Various forms of electrotherapy, such as the galvanic and sinusoidal follow in order of importance, and lastly, come the basal metabolism determinations. The various types of apparatus have been more or less standardized by the Council of Physical Therapy and need not be taken up in this discussion.

The placement of the apparatus in a department is of vital importance to the efficiency of operation with the least strain upon the technician. While much will necessarily depend on the arrangement and space which is available, an effort should be made to have those pieces of equipment which require the most attention closely grouped. Others that are less frequently used or which can be left during the course of treatment should be at the greater distance from the center of activity. Equipment that needs water in its application, such as the diathermy, should have running water and a basin in the same booth. Those pieces of apparatus that give off light during the treatment can be placed in darker portions of the room. Others that require light for their manipulation should occupy a booth near a window. Electrical equipment that needs to be kept dry should be as far removed from the steamy atmosphere of the hydro-therapy department as possible. The hydro-therapy room should be shut off by a door and equipped with a ventilating fan, exhausting moisture laden atmosphere to the outside. The static machine, which although bulky and noisy, has been rejuvenated. Because its fundamental actions are now better recognized, it is again coming into more general use. The older idea that it was a psychic treatment only has been abandoned—first, because it proved ineffectual, second, because of the better understanding of the physics underlying this type of energy. As yet no apparatus has been devised to supplant it, which is not more cumbersome than the original machine. Its output is a

high voltage, low wattage, undirectional current, having a distinct positive and negative pole. Because of its noise in operation, it should be kept in a sound proof room separated by a double door from the rest of the department. The basal metabolism apparatus should be in a room that can be shut off, where quiet conduces to basal conditions for the test. This room should also contain accurate scales for weight and height.

For separation of the various pieces of apparatus for treatment we have found that the rigid semi-partition is not as convenient as bleached sheeting suspended from nickel plated piping hung from the ceiling. These curtains are seven feet high and clear the floor by one foot, making cleaning of the floor a simple task by pushing all curtains back to the wall. It also allows more freedom in moving around and permits the joining of two cubicles when this seems necessary or expedient. Although the curtains are not entirely opaque, by having males and females report on alternate days, any discomfort from this point of view is eliminated.

As a rule, the x-ray department both radiographic and therapeutic can be combined with the physical therapy department to advantage. In smaller institutions where the clinic is not particularly active, one technician can serve in both capacities. In the larger and more active clinics, it is of advantage to have both technicians associated so that one may relieve or assist the other. With the modern type of protected x-ray tube, the former expensive type of room construction with lead lined walls, doors, ceilings and keyholes is an inutile pomposity.

In checking over the failures in our department, we find that the most frequent cause is error in diagnosis. This leads to the wrong choice of modalities in the prescription, which do not satisfactorily influence the pathological process. Improper administration of the prescription by student nurses, or a poorly trained technician also plays its part. They seem to work upon the theory that if a little current or heat, or massage is good, more should be better. This does not always hold true. Occasionally a mental patient is too disturbed, resistive or uncooperative to be a fit subject for these measures. The attending danger of electrical shock, thermal burns or damage to expensive equipment precludes the possibility of having such patients treated.

Needless to say, the selection of the personnel of the physical therapy department should be made with the thought in mind that this is only one unit of an institution and that a close friendly cooperative attitude must exist between this department and the other departments of the hospital. So frequently it occurs that the ward physicians, not knowing what else to do for a patient, order physical therapy without arriving at a diagnosis. Having slight knowledge of what services the department can render them, they fail to consider many cases of physical disorder that could be benefited. In a well organized efficiently running therapy department it is essential that the daily schedule be pre-arranged so that two patients will not report for treatment on the same piece of apparatus at the same time. There is a lack of appreciation about this on the part of the ward physicians and employees, who consider their own departments first. The ward work must be done; afterwards someone can be sent to the physical therapy laboratory. This results in idle spots and rush periods which militate against good work. Sometimes personalities clash among department heads, which result in the patient not receiving the treatment due him. On other occasions, a physician's order for treatment of a patient is overlooked or forgotten and the patient is not treated. Often there is no record of the physician's request sent to the department. This results in the ward physician discrediting the efficacy of physical therapy treatments, inasmuch as the true circumstances are naturally withheld. A system whereby a list of those patients scheduled for treatment who do not appear is sent each day to the physician in charge of their cases obviates part of the difficulty, and a list each week of those patients on his service who have been under treatment, eliminates the other part of the difficulty, provided of course, that he takes the interest to read the report and check it through.

Each department in each hospital has its own peculiar difficulties. However, through closer cooperation of various department heads, through a better understanding of what physical therapy is endeavoring to do, and a broader comprehension of the difficulties it has to encounter, a greater use and higher efficiency of physical therapy in mental hospitals will result.

NOTE.—Since the advent of radio in every household, short wave, long wave and frequency have become common terms. Shorter wave lengths are of higher frequency as we noticed on our electro-magnetic spectrum. In the diathermy field, which is below the infra-red section, short wave lengths, of course, are merely relatively short. I would rather think of it in terms of frequency. Diathermy machines for years have been high frequency machines, 1,000,000-1,500,000 cycles, although they are becoming higher and higher (10,000,000-100,000,000 cycles).

I take it that your question refers to the machine outside the door, which operates on a wave length of about six meters, which is about 40,070,000 cycles, and it is quite penetrating in its effect. The exact amount of penetration is being worked on by the Council of Physiotherapy, and I would refer you to their reports in Journal A. M. A. of April 6, April 20 and May 11 of this year. The shorter wave machines in all probability do get more directly to the seat of difficulty, where we want the heat. Does that answer your question, sir?

INSTINCTIVE, EMOTIONAL AND MENTAL CHANGES FOLLOWING PREFRONTAL LOBE EXTIRPATION.*

By SPAFFORD ACKERLY, M. D.,

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I wish to report some interesting and important changes noted during a two-year postoperative study of a 37-year-old married woman with four children. This woman's left prefrontal lobe had been partially destroyed by a tumor and her right prefrontal lobe had to be amputated in order to uncover and excise the tumor.

The operation was performed in April, 1933, by Dr. R. Glen Spurling, Assistant Professor of Surgery, University of Louisville School of Medicine, and reported by him in his chairman's address before the Neuro-Psychiatric Section of the Southern Medical Association in November, 1933. With the consent of the author, I shall first read his account of the operation and show his drawings of the tumor *in situ*.

A case in our clinic during the past year offered an unusual opportunity for clinical investigation of prefrontal activity. The patient was an Hungarian-American woman of 35 years, possessed of good average intelligence. She had had symptoms of brain tumor for at least three years, and at the time she presented herself for examination there was unmistakable evidence of a large, slowly growing neoplasm arising from the midportion of the anterior cranial fossa, an olfactory groove meningioma. A sudden anosmia developed three years previously. There were no pressure symptoms until one year before admission, when she began to suffer with severe headaches and failing vision. On admission to the hospital she was dull and apathetic, but not disoriented. She was moderately emaciated and dehydrated from vomiting. Her vision was badly damaged due to a bilateral choked disc.

The usual procedure employed for removing a neoplasm of this sort consists of reflecting a large right frontal bone flap and attacking the tumor from beneath the surface of the frontal lobe. Such a course was followed in this case. When the frontal lobe was elevated, it became obvious immediately that the tumor was so large that its removal in this manner would be impossible. In order to secure adequate exposure, the entire right prefrontal area

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

was amputated. The line of incision on the lateral aspect was placed about 2 cm. anterior to the precentral convolution superiorly and carried straight downward to the temporal lobe (Fig. 1). The anterior horn of the lateral ventricle was cut across about 2 cm. from its tip.

Following this lobectomy, the right side of a very large meningioma was brought clearly into view (Figs. 2 and 3). The falx cerebri was found to be stretched tightly across the superior margin of the growth. It was cut and an attempt made to dislodge the growth into the space previously occupied by the right frontal lobe. Due to the poor condition of the patient, the operation was abandoned at this point.

Ten days later, the wound was reopened, and the entire right anterior fossa was found to be filled with tumor tissue. After a very stormy session, we were able to excise all of the tumor which lay to the right of the mid-line. There remained, however, a large mass of tumor to the left of the mid-line. There was considerable doubt at the time whether the tumor on the left side could be removed through the right frontal exposure. Inasmuch as the right anterior fossa was again empty, I felt that there would be a further shifting of the tumor toward the dead space. The wound was again closed with the hope of being able to complete the removal at a subsequent date.

At the third operation, one week later, I was surprised to find very little shifting of the tumor to the right of the mid-line, the dead space being filled with cerebrospinal fluid. However, we were able to remove completely the remainder of the growth by working beneath the falx cerebri. After the last fragment of tumor had been lifted out of its bed, the left prefrontal area was found to be more extensively compressed and destroyed than had been the right prefrontal area. The tip of the left prefrontal lobe was no more than 1 cm. in thickness and literally floated in the bath of Ringer's solution with which we filled the anterior cranial fossa.

The anatomical conditions in this case as regards the prefrontal regions postoperatively were as follows: the right prefrontal area had been completely removed by the surgeon. The left prefrontal area had been compressed and partially destroyed by the tumor. The compression and destruction of the left frontal lobe had been confined to the medial surface. The cortex had not been invaded by tumor. The tumor itself had been completely removed.

Convalescence was uneventful. The wound healed primarily, and seven days after the third operation, the patient was up and about the ward.

Histological study of the growth proved it to be a meningioma characteristic of those arising from the olfactory groove. The amount of tumor recovered, not including that removed through the suction apparatus, weighed 150 grams.

The mental state of the patient postoperatively presented many interesting features. Between the first and second operations, after the right prefrontal lobe had been amputated but only a small part of the tumor had been removed, she was duller and more apathetic than formerly. She developed definite hallucinations and delusions and on occasions was disoriented as to time and place. On one occasion, she thought there was a snake in her bed; on another, she heard her husband's voice in the hall, even though he had not visited the

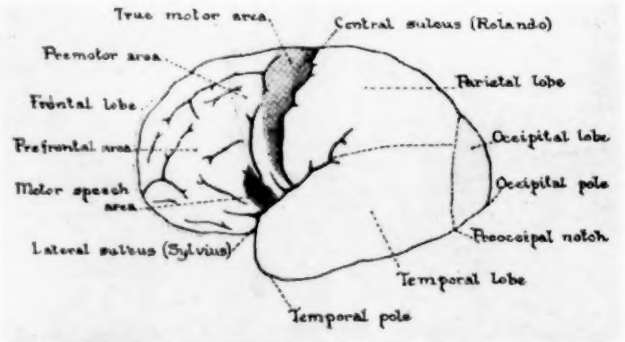


FIG. 1.—Drawing of the left cerebral hemisphere (lateral view) showing the approximate boundaries of the four lobes. The areas of known functional activity in the frontal lobe are indicated.

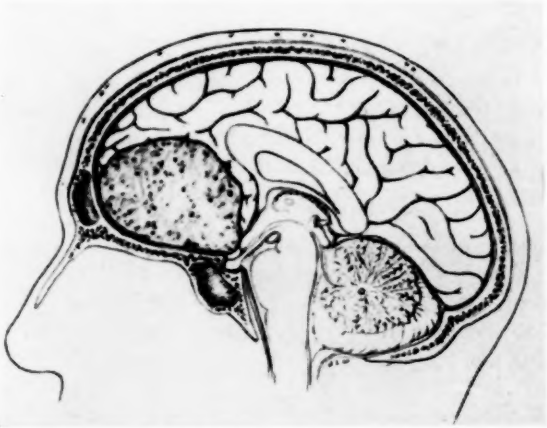


FIG. 2.—Drawing showing the approximate size and location of the tumor in sagittal view.

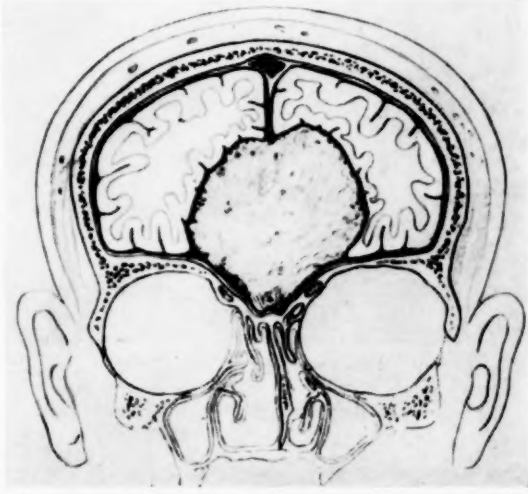


FIG. 3.—Drawing showing the approximate size and location of the tumor in cross-section.



FIG. 4.—Lateral view.



FIG. 5.—Anterior-posterior view.

X-RAY OF SKULL AND SILVER CLIPS APRIL, 1935.

hospital during her illness. Her memory was impaired, inasmuch as she could not recall the visits of her daughter or the articles of food on her tray at the previous meal. All of these symptoms were more marked the first few days after the initial operation. Between the second and third stages, when perhaps 75 per cent of the tumor had been removed, her demeanor was altered remarkably. Whereas, before the second operation, she had been dull and apathetic, she became alert and interested in her surroundings. The hallucinations and delusions did not recur. She did, however, continue to show an unusual sense of well-being and indulged in rather inane joking and levity. She became completely oriented and her memory was accurate.

After the third session, when the entire tumor had been eradicated, her demeanor became more natural, and while she still, as her daughter expressed it, had a "silly grin" on certain occasions, she was nevertheless alert, cooperative, and oriented as to time and place.

TWO YEARS LATER.

Neurological examination negative except for secondary degree of optic atrophy and anosmia, both persisting since the operation.

Present Mental Status.

PSYCHOLOGICAL TESTS.

General Intelligence Level.—The patient rates as well as the average American adult on both the Stanford-revision of the Simon-Binet tests and the Arthur performance tests. These results show that her ability is at least average. If she did not have a language handicap due to her Hungarian nationality, she might have done even better on the Binet test. Likewise, if her speed had been on a par with her accuracy, she would have done better on the performance tests. She was extremely slow and deliberate on all of her performance tests and this slowness was accompanied by strong concentration on one item at a time. She would never take in a form board as a whole, but would limit her attention to one part until it was finished and then, and only then, would she work on or pay attention to any other part. This might be due to either one of two things—an increased power of concentration in one direction, or lack of ability to be distracted by other parts of the whole. We do not consider that this is essentially a visual difficulty.

Analysis of Memory Tests.—Analysis of the memory scores on the Stanford-Binet and performance tests, plus three other memory

tests, shows there is no disability for immediate memory. Patient remembers a movie seen the day before much better than the staff. There is no impairment of remote memory, which in fact, seems unusually good.

Everyday Living as Related to Test Findings.—Patient's everyday activities as recorded by observers, *i. e.*, her husband, 16-year-old daughter, neighbors, village priest and doctor, and by members of this staff, show little or no impairment of general intelligence and more than bear out the ratings of the intelligence tests. Her family states that she can, when she wants, plan and execute the household duties, market and preserve fruits and vegetables as well as she used to do ten years previously. There is no slowing in these familiar performances such as occurs in the tests.

In connection with the increased power of concentration or lack of ability to be distracted in the tests, we have the following observations; namely, a tendency to insist on finishing what she is saying in spite of efforts to change the subject, and an equally marked tendency to walk directly to any destination without looking to the right or left. These characteristics we feel are unusual in a naturally extroverted individual like the patient. Furthermore, her husband and old friends have of their own accord commented on these points, saying she never had this tendency before the operation.

Probably along this same line, we can mention another point upon which all observers agree and that is that there is no hesitancy in executing a decision once made. Her family says, "Once she gets anything into her head, you cannot knock it out." However, her decisions have never led to vicious or anti-social behavior. There is no wasted motion such as "going on wild goose chases." For instance, she is liable to make a decision that she is going to let the house go dirty, and it remains dirty until she makes another decision to clean it up. When she does, she will carry through and clean the house from top to bottom. However, left to her own devices, it is "quantity" production rather than "quality" that interests her. She does not strive for "quality" for "quality's" sake, as she once did. Only when there is sufficient external incentive to strive for "quality," will she achieve it, but apparently not without increased effort, as in the performance tests.

Energy Formation.

The patient states that she can do more work without fatigue than before her illness. Her husband substantiates this and tries to make her limit her activities. On a recent wash day, the patient washed from 6.00 a. m. to 11.00 a. m.; walked two and a half miles to take lunch to her children at school; called on friends in the afternoon; worked in her garden on the side of the mountain; cooked supper; and walked one mile to church. The patient stated that she went to bed at the regular time, but experienced no sense of fatigue. She went to sleep at once.

At present, all observers report a tendency at times to over-activity, but it is purposeful activity. When "on the go," she is going somewhere or doing something. With the increase in motor activity there are no fidgetings or aimless, purposeless movements. Moreover, while her husband and old friends state that she was formerly a restless spirit, we, curiously enough, have noticed her sitting alone for an hour at a time in our office without getting up and moving around when she could have done so easily enough. She usually rushes to church, arriving an hour early and then sits quietly until the service begins. She often lies quietly awake in bed for one to two hours waiting for her husband to retire. We see here bursts of activity punctuated with unusually passive behavior.

Psychomotor Activity.

Patient is at times loquacious, but there is no continuous pressure of speech. We have repeatedly noticed that she concentrates on one subject which she may or may not initiate, and she will not jump to another until she has exhausted the theme; then she will go to another topic. There is never any hesitancy in her speech—words seem to flow. She has never shown flight of ideas, rather has it been the opposite. She initiates comparatively little conversation, but she tends to monopolize the conversation once she starts. If nothing is said directly to her, she may sit silently for a long time.

Emotional Tone.

Mood Variation.—At the present time, two years after the operation, patient looks older than she did a year ago. Compared with that time, she looks a little dull, apathetic and flat. What she says

about herself is very consistent with this picture, "The first year I felt like 16, now I feel my own age." She feels she is now going to maintain the present "normal" feeling tone for the rest of her life. From this we judge that the patient's mood reactions have become stabilized. On the other hand, the husband thinks she still has an exaggerated feeling of superiority over others. This seems to be definitely connected in the husband's mind with her lack of respect for his authority and the authority of others, contrary to her former attitude. I think there is reason to believe that her mood reactions at present are not unusual for her. The patient declares she feels more concerned about things in general this year than last, but admits that she worries less than before the operation. All observers agree that she shows no tendency to brood, to cross bridges before she reaches them or to indulge in forebodings. In short, we see no anxiety here.

Emotional Responsiveness.—Patient still flares up easily at her husband and children when they cross her, but she gets over it quickly. Before the operation her husband said she did not recover so quickly. She would hold resentment several days to a week. None but her family has noticed her losing her temper. She is remarkably well poised in general. Recently she went through two days of testing and interviewing by the staff and she showed no signs of restlessness, irritability or other evidences of emotional instability. In fact she never has shown this. She has always maintained a consistent attitude of respect toward the doctors and staff and no evidence of undue familiarity has been noted.

Sex Interests and Demands.

The patient states that her interest in sexual intercourse which was increased last year has decreased during the past year, and that at present it is not different from what it has been throughout her married life. Intercourse occurs on the average of once a week. On the other hand, her husband, who is considerably older and quite disinterested in such matters, states that she still has an increased sex urge. There is no tendency, however, to attract the opposite sex in any untoward way, or to talk on sexual topics.

Social, Religious and Ethical Attitudes and Behavior.

The staff observers all feel that the patient is a very real and genuine person; they feel drawn to her. Her friends feel the same way about her. They say she is generous, kind-hearted and interested in their welfare. Her husband says she is more selfish toward him and the children, but not towards friends and relatives. He accuses her of indulging recently in vulgarity which greatly annoys him. This is a new development and we are watching it.

She, herself, thinks she is more self-assertive in general than she was before the operation, and her family feel likewise. They explain it, however, on the basis of her being spoiled by so much attention since her illness. The doctors have made a big fuss over her, to be sure. Some of the nurses who had seen her come through this operation cried when she left the hospital. Village friends made a holiday of her home coming. They all felt it was like a return of the dead.

The family says she now waits until Sunday morning before planning the day's activities—contrary to her usual custom. However, she can plan ahead when she wants to as evidenced by her desire to return home last summer in order to preserve fruits and vegetables for the family. Upon arriving home she executed her plan as she had always done.

She has taken more interest in church attendance since the operation than she did formerly. During the recent Lenten season she has gone regularly three times a week. She insists that it means a great deal to her and that is the reason she goes. The village priest has taken a deep interest in the scientific aspect of this case. He has noticed that she frequently comes an hour early and sits quietly until the church service begins. He describes the whole family as one hundred per cent Catholic and sees nothing unusual in the patient's religious interests.

Evidences of Ability to Learn.

The family, friends and priest state that patient speaks much better English than at the time of operation or before. She sings English hymns now and reads an English newspaper which she

never did before the operation. Her husband states she can read English better than he, and they started studying together after her operation. The husband's general intelligence test, by the way, is below that of the patient's by several points. It should be mentioned also that the husband showed normal speed on all performance tests, but rated lower than the patient in accuracy.

Present Findings of Possible Significance.

1. Marked slowness and deliberateness on the Arthur performance tests. (The question is, does the patient have increased power of concentration, or does she lack the ability to become distracted?)

2. An apparent perseverance, whether in the realm of ideas or activities, once the idea is formulated or the action initiated.

3. An increased capacity for work and physical exercise without fatigue; no evidence of unusual mental fatigability.

4. A noticeable lack of anxiety about anything not of immediate concern to her, and even then she does not hold on to it.

5. More self-assertion since operation.

6. Husband complains of her increased sex urge ever since the operation, though patient denies it of late.

7. Patient flares up easily at children and husband—but not at others.

8. A very recent tendency, according to the husband, to indulge in vulgarity—not seen heretofore. (Too recent to evaluate.)

9. Patient carries on usual household duties, but prefers "quantity" production to "quality"; she is capable of "quality" work, however.

10. Patient has learned to speak and read English better since the operation.

INTERIM HISTORY.

Patient was given the same psychological tests outlined above on several occasions during the past two years; the first, one week after the final operation, the second four months later, the third eight months later, the fourth one year later and the fifth as above reported, two years later.

The psychologist, Miss Genette Ulvin of our staff, reports no significant changes in any of these tests. The patient has main-

tained a score consistent with average intelligence. On the performance tests she showed throughout the same slow and deliberate motions that we have described. In other words, there has been no mental deterioration as judged by these tests.

For about four months following the operation, however, there were marked changes in the patient's attitude and behavior. She was definitely exhilarated and euphoric; there was a youthful lustre in her eyes; she was over-active, playful, facetious, played in a childish manner on the floor with the children, teased them very much and laughed at trivial things that even the children would not laugh at; she tried to dictate to her husband and family. There was an increase in her sexual demands. She was on the go constantly, either to the stores or to the homes of friends; was very flirtatious, would yell at strangers, "There goes my sweetie"; went around like a young girl in her bare feet. At this time she dreamed a lot about her early days, her childhood in Hungary, her parents and the life over there. She also talked about it more. She was extravagant with money. Her behavior was such for four months after the operation that the husband remarked: "If my wife had stayed that way, Doctor, I could not have lived with her. She was terrible. She would not do what I told her to do, she would not obey me; she would not be bossed and would laugh at everything I told her. I couldn't get her to be serious about anything. I was afraid she was losing her faith in her religion, but thank goodness that changed and she improved. I thought she was going to lose her mind, she would not listen to any of us." As we look back in our notes on this period, we see recorded in several places that there was no distractibility; in spite of her feeling of exhilaration and talkativeness, there was no flight of ideas; at times she showed a curious poise and ability to be quiet and not move around. We did not attempt to interpret this at the time, but merely recorded it. We know that general paretics show manic symptoms of exhilaration without the typical distractibility of the manic. Indeed, do we not frequently venture a provisional diagnosis of organic brain disease on this point alone? All the exaggerated symptoms disappeared in six months, but there persisted a mild subjective state of well-being and youthfulness for a year. During this time she repeatedly told us that she felt like 16. She felt that Dr. Spurling had "cut the worry" out of her brain;

she no longer worried about anything or feared anything. But during the second year this state of exhilaration faded and at present the patient states the feeling of youthfulness has vanished. She now states she feels her own age and expects to remain that way—"I don't feel too happy any more, I only feel as happy as I used to before my illness. I feel now just as I always felt."

DISCUSSION.

The question is, what symptoms can we ascribe to prefrontal lobe tissue deficiency in this whole picture?

Three months after the operation I felt that the patient followed pretty much the traditional textbook picture of loss of so-called inhibitions subsequent to frontal lobe defects. It is conceivable that the symptoms might have been due to frontal lobe deficiency and that her improvement was brought about by vicarious functioning of the remaining prefrontal lobe tissue. I am inclined to believe, however, that a large part of her reactions during the first four to five months was the result of a mood swing precipitated by the operation, accentuated by previous suffering, and appropriate to her normal personality make-up. She said, "I was dead and they brought me back to life. Why shouldn't I be happy?" But this does not explain the consistent test findings throughout this period and subsequently, namely, the slow and deliberate performances and absence of distractibility in both speech and action. In fact, the tendency to persistence in speech and action and lack of distractibility are much more significant in the presence of the markedly elevated mood.

We are now interested in evaluating the present findings uncolored by exaggerated mood variations. What we see at this time has for the most part been there since the operation, namely, marked slowness and deliberateness on performance tests; increased perseverance in psycho-motor activities; increased capacity for hard work without fatigue; a decreased anxiety and concern over matters not immediately at hand, increased self-assertiveness at home, and probably some increased sex urge. The tendency of late to use vulgar language may be significant, but further observation is necessary to evaluate and confirm this point.

In general, we cannot but be impressed with the effortlessness with which this person is living. What seems to be absorbed con-

centration on her part, we feel, is more an impairment of the ability to be distracted. Even her concentration is effortless; she seems to swim along in it. There is no real anxiety about anything. She seems "abnormally normal" (statement of her priest) in matter-of-factness, accepting the world as she finds it, and yet, she goes about her business and does it all very well when she wants to. At the time her husband was injured in the mines, she rushed to the hospital and burst into tears when she saw him, but upon leaving did not dwell on the unhappy event. She is normally responsive to anything at hand, but appears little concerned about anything remote. Her persistency and perseverance seem to be somewhat dependent on this lack of distractibility. Increased capacity to work without fatigue, increased sex urges, diminished anxiety with freer emotional expression in general can, I think, be conceived of as a loosely knit syndrome. Corrective associations are not as automatically and immediately effective in determining her behavior as they ought to be. In other words, energy seems to flow along the final discharge pathway with less interruption by internal as well as external impressions, and therefore, perhaps more energetically. This seems to tend toward "quantity" production rather than "quality." Those at home agree that she is capable of "quality" workmanship, however, but there must be strong incentive. Therefore, the defect is not primarily in the intellectual, memory, emotional, or volitional spheres, but perhaps fundamentally in a lack of the ability to be normally distracted.

She does not seem to take in simultaneously the elements of a total setting. If she were sitting on this platform at the moment, I think we might all notice that she would give her attention to only one thing at a time—and appear at that time to be oblivious to other stimuli; this room and the people in it—all seem to be a part of you and me at this moment, but I do not think she would take these things simultaneously into her consciousness. Just as in the form boards, she would give her whole attention to one object at a time—a chair, a person, a light, a door, etc. I believe this lack of ability to be normally distracted is more fundamental and more nearly correct than to say that the patient lacks the ability to synthesize. Perhaps she does not synthesize quickly and elaborately because she does not respond simultaneously to parts of the whole. Should we not consider the time element when we talk of dis-

ability in synthesis? Furthermore, to synthesize requires effort and that brings in the emotional element. All agree that it is surprising what this woman can do when she "wills" to do it and the converse is also true. That is what irritates her family so much and likewise makes this study so difficult.

CONCLUSIONS.

If I see anything of fundamental significance in this case, I would say that this brain with possibly three-fourths of all prefrontal lobe tissue destroyed, appears to find difficulty in registering more than one stimulus at a time. This finding is not inconsistent with the conception that our frontal lobes enable us to become aware of an increasing number of simultaneous impressions.

Periodic observations will be made on this patient in the future and data reevaluated.

DISCUSSION.

DR. EARL D. BOND (Philadelphia).—Mr. Chairman, may I ask Dr. Ackerly if he has compared the mental results in this case with those in the Harvard crowbar case. From what I remember his findings back up those made on that famous case long ago.

DR. R. G. HOSKINS (Boston, Mass.)—I should like to ask if any studies were made of the metabolic changes. One or two of the manifestations discussed suggested there might be some interesting things happening in her endocrine apparatus. I wonder if any observations were made bearing on that.

CHAIRMAN CHENEY.—Perhaps Dr. Ackerly is familiar also with the report made by Dr. Brickner of a somewhat similar case, with frontal lobe extirpation. That patient was presented before the New York Academy of Medicine, and he apparently had a good deal more of a loss of his capacity than Dr. Ackerly's case shows. He was quite impulsive, showed poor judgment in his general behavior, and was in a way a difficult person. In that case it seemed to me there was a good deal of similarity with the reaction we not infrequently see in the early stages of general paresis.

I wonder whether Dr. Ackerly would say that this woman had lost the ability for abstract thinking; whether she is confined to very concrete types of thinking and is unable, shall we say, to visualize in her own mind ideas and conceptions that are not concretely performed. I should be inclined to say also that she has lost the ability, as Dr. Ackerly said, to transpose quickly from one idea to another and has lost perhaps a certain facility, or, as Dr. Ackerly said, has lost the ability to be distracted.

A very striking loss of fatigue reaction I think is very important. This woman, as I understand it, does not get tired as one normally might. I don't suppose frontal lobe extirpation is to be advocated to relieve the tired feeling a good many of us have at times, but I don't know that the possible relation of the prefrontal lobes to fatigue and general tiredness has been discussed before. I think this is a rather new and at the same time important finding in connection with the apparent almost complete loss of the prefrontal lobe.

DR. S. SPAFFORD ACKERLY (Louisville, Ky.).—In answer to Dr. Bond's question about the Crowbar case, I think there was so much irritation from scar tissue in that case that it makes it rather difficult to compare it with cases we have had recently—those of Dr. Brickner, Dr. Spurling and others where there are clean-cut amputations of frontal lobe tissue rather than traumatic scar tissue.

I think Dr. Spurling's case illustrates the point very well. This tumor, as you recall, was taken out by Dr. Spurling in three stages. After the first stage, the individual was apathetic, dull and showed memory impairment. After the second stage, she was brighter but disoriented, hallucinated and irritable. But after the third stage, all of these bizarre manifestations cleared up at once and she was left in normal contact with her past as well as present and with this feeling of well-being and emotional exhilaration.

Then I think in the past we have mixed up the signs of tissue deficiency with those of mood disorders following the relief of pressure, both physical and psychic. Mental signs here were concurrent with the shifting of the tumor mass into the area left empty by the amputation. Dr. Spurling believes that these signs can very properly be designated as irritation phenomena.

Concerning the Brickner case, which I deliberately did not read until two days ago for fear of being prejudiced by his findings, it might be that he took out more prefrontal lobe tissue than was done in this case. His psychologist found marked distractibility during testing. Otherwise, distractibility was not emphasized in the paper. Dr. Fulton and Dr. Jacobsen report distractibility in the behavior of monkeys with double prefrontal lobe amputations.

Coming back to this case, it may be that the remaining amount of prefrontal lobe tissue forms a sort of final discharge boulevard whose intersections, so to speak, do not really intersect but go over or under it. But if you take out the remaining tissue you haven't any boulevard and you have more or less aimless impulses or distractibility without any sort of purpose in it, certainly no very complex purpose. But let us not labor the point, but work up more cases to prove or disprove it. Concerning her ability to deal with abstractions, the staff agrees that no real deficit has been noticed. She answered all questions on a moral abstraction test correctly, *e. g.*—"would it be wrong to steal food when one is hungry?" etc.

Dr. Hoskins asked about the metabolic picture, whether or not the endocrine apparatus was influenced. I do not think anything was done on that. I do not think any endocrine studies were made by anyone, either before or after.

Comment.

STANDARDS OF TRAINING OF PROFESSIONAL PERSONNEL IN PSYCHIATRIC CLINICS.

In a report issued by the New York City Committee on Mental Hygiene certain recommendations are made of minimum standards which may be regarded as acceptable for the training of professional personnel in psychiatric out-patient clinics, including both those attached to hospitals and those operated by various social agencies and schools.

This important piece of work began in 1929, with a survey of the mental hygiene facilities and resources in greater New York, which was conducted by the New York City Committee on Mental Hygiene of the State Charities Aid Association, with the cooperation of the National Committee for Mental Hygiene and the Mental Hygiene Section of the Welfare Council, under the Chairmanship of Dr. Lawson G. Lowrey. The published report of this survey revealed both quantitative and qualitative gaps in the community's structure of mental hygiene and psychiatric facilities which, in the opinion of the committee, were susceptible to being diminished. Among other things it showed that each year some 20,000 *new* patients are examined in the psychiatric out-patient clinics and departments of hospitals in this city.

An analysis of the diagnoses made of these patients indicated that " one-quarter (5000) of the total number of patients examined were diagnosed as suffering from one or another of the psychoneuroses; one-eighth from major psychoses; another eighth from ' personality disorders '; and one-eighth only (about 2500) from organic neurologic conditions. Still another eighth were diagnosed and classified by intellectual status (various grades of feeblemindedness); while a generous one-quarter (5000) of the total number were carried on the clinic records as ' undiagnosed.' " Even more significant than these findings was another to the effect that of the 20,000 new patients admitted for the first time to these clinics, *one-third—or almost 7000—failed to return for subsequent visits to the clinic of their original choice.*

The survey report of 1929 refrained at the time of publication from attempting to explain the true meaning of this startling fact since the committee itself was confessedly unsure of the reasons why one out of every three patients did not return for further clinic contact. Nevertheless various members of the Survey Committee indulged in private speculations about the matter. Some were inclined to place the responsibility on the widely-recognized tendency of many psychoneurotic patients to "shop around" in their search for surcease from discomfort until they find a doctor whose opinion coincides with their own. Others felt that perhaps many patients failed to return because of brusque, thoughtless or other unfortunate reception at a given clinic.

The speculation that arose most frequently in the minds of the Survey Committee (without however, any factual knowledge to support it) was the thought that there might be a connection between the specialized professional equipment of some of the physicians, psychologists and social workers on the staffs of these clinics, and the nature of the patient's disorder. For example, it was assumed—in theory at least—that a person suffering from a psychiatric condition and going to a clinic or out-patient department which bore the designation "psychiatric" would be examined and treated by a staff—including the physician—who possessed adequate psychiatric training. But was this theoretical assumption carried out in actual practice?

This question and others allied to it led the New York City Committee on Mental Hygiene in 1934 to undertake further study of the clinic situation in Greater New York, first, to gain some knowledge of what the professional equipment was of the physicians, psychologists and social workers who staffed these clinics, and secondly, to ascertain if it was feasible at this time to formulate a set of minimum standards for each of these three technical groups.

This final survey was carried out under the Chairmanship of Dr. George S. Stevenson, who shares with Dr. Lowrey the credit for a significant and helpful piece of work.

Three special sub-committees were appointed in 1934 to study the matter; one committee consisting of psychiatrists, another of clinical psychologists, and a third composed of psychiatric social workers. Each committee was further divided as to personnel be-

tween staffs working in the out-patient clinics of hospitals, and those working in non-hospital clinics (clinics functioning in social agencies, schools, etc.) The committees met separately on many occasions during the year and a number of joint meetings were also held. Their recommendations as set forth below are the product of the labors of these various groups. For the most part the recommendations are based on a study and analysis of the professional backgrounds and training of many psychiatrists, psychologists and psychiatric social workers actually functioning in psychiatric clinics throughout New York City. The training records of these persons were scanned for possible common denominators and then weighed against the clinical and other needs of patients suffering from psychiatric disorders and also against what the various committees believe to be established trends in the professional fields in which they work. In offering these recommendations the New York City Committee on Mental Hygiene expresses the emphatic opinion that they represent *minimum* standards to be achieved and maintained if the needs of the 20,000 new patients coming to the psychiatric clinics of the greater city each year are to be properly met.

RECOMMENDATIONS OF THE JOINT SUB-COMMITTEES OF PSYCHIATRISTS.

(Chairman for Hospital Clinics—George K. Pratt, M. D., Medical Director, New York City Committee on Mental Hygiene, Associate Attending, Neurological Institute; Chairman for Non-Hospital Clinics—George S. Stevenson, M. D., Director, Division of Community Clinics, National Committee for Mental Hygiene.)

It is recommended that the medical personnel of a psychiatric clinic * be considered as falling into three grades:

The Director—the head of the clinic.

The Assistants—those who carry the clinical routine.

The Junior Assistants—those who work under supervision.

Recommendations for the Training and Experience of Psychiatrists.

The committee believes that certain professional equipment is essential or basic to the training and experience of psychiatrists serving in psychiatric clinics, while other equipment is desirable, although not general enough to be considered indispensable. No attempt is made here to state these essentials and supplementals in the order of importance.

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* The word clinic in this report is used in the sense of a clinic serving ambulatory cases.

THE JUNIOR ASSISTANT.

Essentials—absolute requirements:

Medical degree from a school of recognized standing (class A for graduates after 1928).

At least one year (equivalent to full time) of successful (as evidenced by opinions of his supervisors) *in*patient work as a clinical psychiatrist in a mental hospital.

Personality and temperamental qualities, as evidenced by previous record, which make for insight, understanding and sympathy in human relationships.

Desirable supplementals:

Experience in clinical neurology.

Experience in neuropathology.

Experience in pathology and laboratory procedures with cases of mental disease.

Experience in institution for epileptics, delinquents and mental defectives.

General medical or pediatric practice.

THE ASSISTANT.

Essentials:

The essentials of the junior assistant, plus at least two years of additional experience in general, or specialized aspects of psychiatry such as are referred to above as desirable supplementals.

Experience in clinical service of at least two years of not less than two half-days a week as a junior assistant or the equivalent thereof, consisting of supervised clinical service in a clinic routinely employing the integrated services of psychiatrist, psychologist, and psychiatric social worker.

Personality qualifications making for a liking and ability for teaching, as evidenced by the opinions of those previously supervising.

Desirable supplementals:

Preparation for psychoanalytic practice.

Experience in community education in mental hygiene.

THE DIRECTOR.

Essentials:

A diploma in psychiatry from the American Board of Psychiatry and Neurology, Inc., or unquestioned capacity to meet comparable requirements.

All the qualifications needed for an assistant, plus not less than two additional years of not less than two half days a week of psychiatric experience in a clinic routinely employing the integrated services of psychiatrist, psychologist and psychiatric social worker. This period should include additional experience in clinic administration or in community education in mental hygiene.

Desirable supplementals:

Personality qualities essential to directorial responsibilities and conduct of authority.

Experience in forensic psychiatry.

RECOMMENDATIONS OF THE JOINT SUB-COMMITTEES OF PSYCHOLOGISTS.

(Chairman for Hospital Clinics—Gladys Tallman, Director, Psychological Department, Neurological Institute; Chairman for Non-Hospital Clinics—Simon H. Tulchin, Consultant Psychologist, formerly Psychologist, Institute for Child Guidance.)

In reaching the opinions that follow, this committee considered the published recommendations made in 1927 by Dr. Emily Burr and her committee on minimum standards for clinical psychological work in mental hygiene clinics in New York City; the standards set forth by the Association of Consulting Psychologists, and those of the New York Academy of Medicine.

By *clinical psychological* experience is meant not only the ability to make appropriate application of tests in a variety of situations, but also the ability to interpret results in the light of other available medical, psychiatric, social, and educational data. It also signifies a knowledge of various therapeutic techniques and it calls for an ability to use remedial measures and methods in education and to make personality evaluations and appraisals of attitudes. This experience should include that actually acquired through working with patients in both diagnostic and treatment situations.

Recommendations for the Training and Experience of Clinical Psychologists.

It is recommended that there should be three ranks of clinical psychologists in a psychiatric clinic: (1) junior assistant psychologist, (2) assistant psychologist, and (3) chief psychologist.

A. Junior Assistant Psychologist.

The junior assistant psychologist should have had one year of graduate study in psychology equivalent to the requirements for the degree of M. A., including courses in abnormal psychology, psychological tests and measurements, statistics and laboratory training in the clinical use of tests. Candidates for this rank of psychologist must be skillful in the administration of standardized mental tests in common use in this work.

B. Assistant Psychologist.

The assistant psychologist should have had one full year of graduate study in psychology equivalent to the requirements for the degree of M. A. It is desirable that in addition to those listed above, the courses include educational psychology, remedial measures in educational disabilities and vocational counseling. He should have two years * of full time clinical experience at the

* One year's experience shall be interpreted as 30 hours a week covering a period of 48 weeks. Experience shall include: (a) facility in the use of various scales, (b) interpretation of test findings, (c) remedial procedures in educational disabilities, behavior disorders, personality difficulties, (d) vocational guidance, (e) educational guidance.

level of junior assistant psychologist. This period shall include experience with varied types of cases, such as pre-school groups, school children, adults, delinquents, behavior problems, cases of school maladjustment, including remedial work, physically handicapped, cases with neurological involvements, mental defectives, psychotics, vocational problems, etc. At least one year shall be in a clinical organization involving joint work with psychiatrists and psychiatric social workers dealing with behavior problems, personality maladjustment and related fields.

(In New York State in clinics where commitments to institutions for mental defectives are made, it is desirable that the assistant psychologist be certified as qualified psychologist, under Article 2, Section 19 of the Mental Hygiene Law.)

C. CHIEF PSYCHOLOGIST.

The chief psychologist should have had two full years of graduate work in psychology. The Ph. D. degree, although desirable, is not essential. Emphasis should be more on specific training and experience since the degree in itself is no guarantee of adequate training in this special field. The chief psychologist should have had at least five years of experience at the level of junior assistant and assistant psychologist, including experience with the different types of cases listed above. It is desirable that the experience of the chief psychologist include more than the minimum one year of joint work with other professional groups required of the assistant rank. It is essential that the chief psychologist should have ability to do and conduct research as demonstrated by completed research projects.

The above are to be considered as minimal requirements. The specific requirements will naturally vary with the type of position.

RECOMMENDATIONS.

As a means of realizing the above standards, the joint committee makes the following suggestions:

I. That colleges and universities map out courses for the training of clinical psychologists.

II. That training centers be established in which junior assistant psychologists may acquire experience under supervision.

III. That hospitals, agencies and schools be encouraged to employ psychologists who have the experience and training suggested in this report.

RECOMMENDATIONS OF THE JOINT SUB-COMMITTEES OF PSYCHIATRIC SOCIAL WORKERS.

(Chairman for Hospital Clinics—Sadie Shapiro; Chairman for Non-Hospital Clinics—Elizabeth Dexter.)

Recommendations for the Training and Experience of Psychiatric Social Workers in Psychiatric Clinics.

A. Assistant psychiatric social worker.

1. Graduation from a college of recognized standing.
2. Graduation from an accredited school of social work with at least 800 supervised field-work hours of experience in psychiatric agencies.
3. When there are two or more assistants in a clinic, at least one should have in addition to her educational background and training (as indicated in (1) and (2) above), a minimum of one year post-training experience under supervision.

B. Chief psychiatric social worker.

In addition to the educational requirements for assistant psychiatric social worker, the chief psychiatric social worker should have had a minimum of three years post-training case-work practice, preferably with two of these years in a psychiatric clinic, and at least one year in a supervisory capacity.

ADMINISTRATION.

General Recommendations.

A. Staff organization.

For the purposes of this report, a psychiatric clinic is conceived of as an organization which routinely utilizes the coordinated services of three regularly scheduled technical and professional types of personnel—*psychiatrist, psychologist and psychiatric social workers.** Wherever possible, it is recommended that the members of the professional staff be engaged for full-time services. In those cases where this is not possible, it is recommended that the coordinated services of psychiatrist, psychologist and psychiatric social workers be regularly scheduled in advance. The psychiatrist's professional training, responsibilities and experience usually leads to his assuming the position of director and maintaining relationships between the clinic and its governing board.

A sound and harmonious working program indicates the need to delegate part of the administrative responsibilities of the director to other senior staff members. All members of the clinic staff should be adequately remunerated for their service. The use of volunteers should be discouraged. Exceptions from this warrant no reduction in standards of training on the part of volunteers from those required of regular members of the staff.

In order that the treatment efforts of these various staff members may be coordinated and unified into a single effective treatment program, it is important to provide for regular staff conferences between the participating staff

* It is realized that clinics organized for special types of service may require some modification of this set-up.

members after the separate examinations of each have been made. The findings of these staff members should be used as a basis for diagnosis and formulation of a treatment plan. Such conferences should be repeated whenever a change in the treatment program is under consideration or whenever a serious change in the status of the patient occurs.

While these recommendations are made primarily with a full-time staff in view, it is recognized that circumstances sometimes require the part-time services of such a staff. In these instances, it is vital that part-time staff members operate on a schedule that is regularly assigned. The ratio of at least two psychiatric social workers to one psychiatrist and psychologist is recommended. In part-time clinics the same ratio of professional services should be adhered to.

No psychiatric social worker, psychologist or psychiatrist of a junior or assistant grade should work in a clinic without the supervision of a senior social worker, psychologist or psychiatrist. It is recommended that no clinic undertake to train either didactically or by field work students of social work unless the latter are accredited students in a professional school of social work. Even then, such training should be undertaken only when a senior member of the case work staff is available for training and supervision. In such an instance, a ratio of six students to one supervisor is the maximum recommended. It is also recommended that student psychologists should not be accepted for training unless a senior psychologist on the staff be available for training and supervision. The clinic should be prepared to realize that trainees cannot be expected to carry the same case load as experienced workers, in fairness to themselves and to the patients.

The budget of the clinic should provide for adequate stenographic and secretarial service.

B. CASE LOAD.

The case loads of the individual members of the clinic staff should be sufficiently limited to permit a high standard of effective work. It is impossible to advise the maximum case load in terms of time spent with patients because of wide variations in the types of services rendered. In general, the experience of many types of psychiatric clinics throughout the United States indicates that the *psychiatrist* is required to devote approximately one hour for the first session and approximately an average of one-half hour for each return and follow-up interview. It is recognized, however, that some clinics serving special groups will find it necessary to increase or lessen the above amount of time. The responsibility for making such adjustments in conformity with good practice and accepted standards rests with the director.

The case load of the *clinical psychologist* will necessarily depend upon the nature of the organization, size of staff, and testing program. It is important that the quality of work rather than the quantity be stressed. It should at all times be remembered that the purpose of the psychological examination is to help understand the general problems presented by the patient and to assist in working out a treatment plan. In many cases educational tests, verbal tests

of intelligence, performance tests and special aptitude tests are essential. In order to evaluate his findings in the light of other available data, the psychologist must have time to study these other data. The psychologist should also attend staff conferences and have time available for remedial and treatment work. Under such a program the case load should not exceed eight cases a week.

C. RECORDS.

Because the records of a psychiatric clinic contain material of an unusually confidential and personal nature, the communication of which to unauthorized individuals may have serious results, the safeguarding of records becomes the responsibility of the director who should devise, according to the circumstances of the clinic, special methods for their protection.

WAR PSYCHOSIS AND WAR PROPHYLAXIS.

That the beneficent effects of mental hygiene are still limited for the most part to small dealings with individuals the times give ample proof. We speak of social and national consciousness, and even of world mindedness; but so far as mental health is concerned these are only terms in a dictionary. If individual mental health is indicated by wholesome and satisfactory relations with one's fellows, and if national health depends upon the same kind of international relations, then to discuss international mental health would appear to be to describe a chimera.

Reflecting the gravity of the situation the Netherlands Medical Association has formed a Committee on War Prophylaxis, and has inaugurated among the psychiatrists of the world a campaign against the insanity of war. To give effect to this movement the committee has drawn up a statement which has been signed by 339 psychiatrists of 30 nations, and has transmitted it to the statesmen of the world. As a matter of important record this statement is here reproduced in full.

To the Statesmen:

We psychiatrists, whose duty it is to investigate the normal and diseased mind, and to serve mankind with our knowledge, feel impelled to address a serious word to you in our quality of physicians.

It seems to us that there is in the world a mentality which entails grave dangers to mankind, leading, as it may, to an evident war-psychosis.

War means that all destructive forces are set loose by mankind against itself.

War means the annihilation of mankind by technical science.

As in all things human, psychological factors play a very important part in the complicated problem of war.

If war is to be prevented the nations and their leaders must understand their own attitude towards war.

By self-knowledge a world-calamity may be prevented.

Therefore we draw your attention to the following:

1. There is a seeming contradiction between the conscious individual aversion to war and the collective preparedness to wage war. This is explained by the fact that the behavior, the feelings, the thoughts of an independent individual are quite different from those of a man who forms part of a collective whole. Civilized twentieth century man still possesses strong, fierce and destructive instincts, which have not been sublimated, or only partly so, and which break loose as soon as the community to which he belongs feels itself threatened by danger.

The unconscious desire to give rein to the primitive instinct not only without punishment but even with reward, furthers in a great measure the preparedness for war.

It should be realized that the fighting-instinct, if well directed, gives energy for much that is good and beautiful. But the same instinct may create chaos if it breaks loose from all restraint, making use of the greatest discoveries of the human mind.

2. It is appalling to see how little the peoples are alive to reality.

The popular ideas of war as they find expression in fulldress uniforms, military display, etc., are no longer in keeping with the realities of war itself.

The apathy, with regard to the actions and intrigues of the international traffic in arms is surprising to anyone who realizes the dangers into which this traffic threatens to lead them. It should be realized that it is foolish to suffer certain groups of persons to derive personal profit from the death of millions of men.

We come to you with the urgent advice to arouse the nations to the realization of fact and the sense of collective self-preservation, these powerful instincts being the strongest allies for the elimination of war.

The heightening of the moral and religious sense in your people tends to the same end.

3. From the utterances of well-known statesmen it has repeatedly been evident that many of them have conceptions of war that are identical with those of the average man. Arguments such as "War is the supreme Court of Appeal" and "War is the necessary outcome of Darwin's theory" are erroneous and dangerous, in view of the realities of modern warfare. They camouflage a primitive craving for power and are meant to stimulate the preparedness for war among the speaker's countrymen.

The suggestive force of speeches made by leading statesmen is enormous and may be dangerous. The warlike spirit, so easily aroused by the cry that the country is in danger, is not to be bridled, as was evident in 1914.

Peoples, as well as individuals, under the influence of suggestions like these, may become neurotic. They may be carried away by hallucinations and delusions, thus involving themselves in adventures perilous to their own and other nations' safety.

We psychiatrists declare that our science is sufficiently advanced for us to distinguish between real, pretended and unconscious motives, even in statesmen. The desire to disguise national militarism by continual talk about peace will not protect political leaders from the judgment of history. The secret promoters of militarism are responsible for the boundless misery which a new war is sure to bring.

International organization, if properly used, is now sufficiently advanced to enable statesmen to prevent war by concerted action. Protestation of peace and the desire for peace, however sincere, do not guarantee the self-denying spirit necessary for the maintenance of peace, even at the cost of national sacrifice. If any statesmen should think that the apparatus to ensure peace is, as yet, insufficiently organized, we advise them to devote to this purpose as much energy and as much money as is now being expended on the armaments of the various countries.

We cannot close without expressing our admiration of those statesmen who show by their actions that their culture and morality are so far advanced that they can lead peoples to a strong organization of peace. In our opinion they alone are truly qualified to act as the leaders of nations.

News and Notes.

DR. BOWMAN APPOINTED TO BELLEVUE HOSPITAL.—The Civil Service Commission of New York City has announced the appointment of Dr. Karl M. Bowman to the position of director of the Psychiatric Division of Bellevue Hospital. For a number of years Dr. Bowman has been chief medical officer of the Boston Psychopathic Hospital. Earlier he had also been on the staff of the Roosevelt Hospital and that of the New York Neurological Institute.

In taking over this very important post Dr. Bowman succeeds Dr. Menas S. Gregory, who for many years filled the post with great distinction, and whose resignation became effective last year. The fact that Dr. Bowman was selected from among 16 candidates from various parts of the United States is evidence of recognition on the part of the authorities of his outstanding ability and fitness for the exacting duties he will be called upon to undertake.

Dr. Gregory resumes his connection with the clinic as consultant in psychiatry to the Psychiatric Division of the Bellevue Hospital.

ANNALS OF SCIENCE.—This new quarterly publication will make its first appearance January 15, 1936. Each number consisting of about 120 pages, will be devoted to articles, correspondence and book reviews relating to the history of modern science and its application, and as occasion offers will present original documents of interest to the historian or research worker. Dr. D. McKie, University College, London, Professor Harcourt Brown, Washington University, St. Louis, U. S. A., and Mr. H. W. Robinson, Librarian of the Royal Society of London, will constitute the editorial committee. Contributions submitted for publication should be sent to the editors at the address of the publishers, Messrs. Taylor and Francis, Red Lion Court, Fleet Street, London, E. C. 4, with the exception of communications from the United States which should be addressed to Professor Brown. Annual subscription to the journal will be 20 shillings, single copies 6s.

ANNUAL REPORT 1934, THE ROCKEFELLER FOUNDATION.—President Max Mason in the annual report for 1934, which has just been made public, in stressing the basic policy of the Foundation to promote the well being of man indicates that the program for 1934 and the immediate future calls for "increased emphasis on special fields, and on realistic research designed to meet definite and clearly recognized needs."

Grants made by the Foundation during the year amounted to $12,679,775 proportioned as follows: in public health $2,200,000, medical sciences $1,026,200, natural sciences $1,051,210, social sciences $1,164,690, together with $525,500 additional appropriations as emergency grants, the humanities $749,500.

In the field of medical science President Mason states, "The major interest will continue to be mental health, and support will be given for research and its applications, as well as for the training of personnel. A secondary interest will be the training of medical students in hygiene and public health." In the natural sciences the field of biology is stressed particularly as leading to "the understanding of physical and mental growth of development." In social science studies in the problems of social control, economic security, public administration and criminology have been sponsored. The great difficulties besetting some of these problems, notably that of international relations, is pointed out; "But the stakes are so high that their attainment is worthy of tremendous effort."

Among the medical sciences psychiatry came first in the interest of the Foundation. "Aid of four types was given for the advancement of psychiatry: grants to universities and other institutions for the development of research and teaching in psychiatry and associated subjects; endowment and building funds for establishing psychiatric departments; research aid grants to individual workers engaged in important investigations in mental disease; and fellowships to enable men and women, especially qualified for work in this field, to obtain desirable advance training."

Grants for various psychiatric projects were made to McGill University, the Massachusetts Department of Mental Diseases, Worcester State Hospital, Johns Hopkins University, University of Leiden, the Chicago area project dealing with juvenile delinquency, the University of Rochester, the National Committee for

Mental Hygiene, the University of Colorado, the University of Michigan and the Institute of the Pennsylvania Hospital. Work in neurology and related subjects was sponsored at New York University, Northwestern University Medical School, University of Pennsylvania, Dartmouth College, the Lister Institute of Preventive Medicine in London, and the Walter and Eliza Hall Institute of Research in Pathology and Medicine in Melbourne, Australia.

STYLE FOR BIBLIOGRAPHICAL REFERENCES.—In order to conform with established usage writers of papers to be submitted for publication in the AMERICAN JOURNAL OF PSYCHIATRY are requested to use the following style in giving references:

Line, W., and Griffin, J. D. M.: Objective determination of factors underlying mental health. Am. J. Psychiat., 91:833-842, Jan. 1935.

Kloos, G.: Gedankenabreissen mit tonusverlust oder Schwindelanfällen bei Schizophrenie. Psychiat-neurol. Wchnschr., 36: 541-543, Nov. 10, 1934.

That is, the surname of the author, or authors, followed by their initials and a colon, the title of the paper, name of the periodical (abbreviated), volume number, a colon, page numbers, and date.

Abbreviations should follow those given in the Quarterly Index Medicus but if in doubt the full name should be given.

References to books should follow the same system, as:

Dunbar, H. Flanders: Emotions and bodily changes, p. 316-324. Columbia University Press, 1935.

The importance of uniformity and meticulous care in preparing bibliographical references should require no emphasis. Contributors to the JOURNAL are expected to bear these points in mind.

Book Reviews.

THE FOUNDATIONS OF HUMAN NATURE. By *John Morris Dorsey, M. D.* (New York: Longmans, Green & Co., 1935.)

It is interesting and relevant to note that the authors most often cited in this book and whose words appear at the head of each chapter as a sort of keynote for the chapter are generally poets, philosophers, lyrical thinkers and exhorters of one type or another. Thus, if one looks down any one page of the bibliography, one will find citations from Samuel Johnson, William Pitt, Bertrand Russell, Alexander Pope, Elbert Hubbard, Oliver Wendell Holmes, with an occasional reference to White, Burnham, and such more or less scientific writers.

It is exceedingly relevant to discover the source of the basic philosophy of a writer on mental hygiene. On page 70 in a chapter headed as follows: "For words are wise men's counters, they do but reckon by them; but they are the money of fools," from Thomas Hobbes, there follow these statements:

"*Basic Philosophic Principles.*—This book was conceived about four great principles of mental action.

"'First, that all sound thinking treats the Universe of Thoughts as a Unity; and classes of things as fractions of Unity; . . . .

"'Secondly, that we cannot deal logically with any statement except by comparing it impartially with the opposite statement.

"'Thirdly, that sound Thought is always essentially a free Pulsation between extremes.'

"Fourthly, that sound thought has form (pattern) as well as plasticity."

The first three basic principles come from a writer by the name of Mary Everest Boole. As a clinical psychiatrist, the reviewer is not at all convinced that this set of principles means anything which is relevant to mental hygiene, if it means anything at all. The reviewer does not believe that we are concerned with any pulsating universe of thought so much as we are with scientific thinking, which surely builds up no universe of thought as a unity, and follows such humble principles as experimentation, statistical evaluation and hypotheses which are to be tested out by experience.

On another page where the author is dealing with man's biological background, he states as follows:

"Out of the perennial translating of energy from consciously experienced psychic events into the organic tensions which, at the stage of the twentieth century, we call the unconscious (the other-than conscious), finally emerges the human organism. The body stands as a living monument of millions of years of constant interplay of ever-growing life monuments and their ever-changing settings."

And then he quotes with apparent approval a statement by Franz Alexander which the reviewer gives in full:

"The same tendency which is at the bottom of the transformation of psychic mobile energy into a tonic form, also dominates the physical phenomena of nature and comes to expression in the formula of the law of entropy, which maintains that there is a steady loss of free energy passing over into closed systems.

"In the field of biology this law is manifested in the structure of the body, where processes which were at one time psychic in nature, which had meaning and purpose, become congealed into reflexes and automatisms. Thus the eternal riddle of biology, namely, the logic of the structure of the body in all its anatomical and physiologic arrangements, arrangements which give the impression as though the body had been designed by an understanding intelligence, finds a ready solution. . . . . The body with all its arrangements constitutes the fossilized descendant of former individual psychical achievements in the struggle for adaptation. In the course of biological evolution the psyche becomes converted into body. Thus also the meaning of any bodily arrangement can be understood only on the basis of those psychic tendencies which in their day constructed it and shaped it."

This implies the rather mystical notion that the psyche creates the body. As a matter of fact, it actually states so. If anything at all, psychiatry is a branch of the biological sciences; and nowhere in the biological sciences, in the experimental facts and in the history of anything we know of evolution is there any evidence that the psyche becomes converted into body. All we know is that as we pass up from the lower organisms to the higher, the evidence of mind becomes more definite, or at least more human. In fact, a definition of higher and lower is fundamentally the degree of the evidence of mind in an organism. The amœba does not seem particularly psychical, whereas the monkey does. Whatever we know of conscious and unconscious relates it to the growth and development of the nervous system. Insofar as we are biological at all, the psyche gradually becomes more apparent as the organism becomes more free-moving, with more differentiated cells, with receptors for wider and more distinct stimulation. The statements of the author and of Alexander belong in a realm entirely away from science. They may be true, but we have no way of knowing that they are true, and all the facts with which we are in contact as biologists contradict them.

Statements of this kind are characteristic of this book, intermixed with perfectly obvious formulations, such as, that the total personality must be studied; that man has an inheritance and that he has an environment, and that the interaction between the two is responsible for what he does. These are statements that belong to poetry, philosophy, metaphysics, platitudinous exhortation, and sometimes a lyrical ecstatic view of life.

Cases are analyzed. Take one from the very first part of the book in which a case of obvious dementia præcox is analyzed: A girl, who suffered the sexual indignities and the sexual traumata common in all civilization and, in fact, all life and, on the whole, having no special import, gradually developed the idea that she was the bride of Christ, enjoying physical relationships with God. The analysis follows in this wise:

"What do we see in this patient but a culmination of her ancestors? Why are her ways of thinking so similar to the primitive ways of thinking found in the dream, in the child, and in the savage ways of thought which are not bound by the Here or There or the Now or Then? How clearly her tranquillity in her beliefs brings out the survival value of the idea! How forcibly this case brings home to us the fact that we believe what we want to believe in order to save ourselves! Much more meaningful for us becomes St. Paul's definition of faith: 'Now faith is the substance of things hoped for, the evidence of things not seen.'" (This quotation, to the reviewer, is like the famous Gilbert and Sullivan jingle—the flowers that bloom in the spring, tra la, have nothing to do with the case.)

"Sound mental hygiene is inseparable from 'the good life.' But why is this true, and what is 'the good life'? What is character? How is it developed? What is conscience? Is it not a challenging fact that cases similar to Grace's constitute some 15 to 20 per cent of state hospital admissions?"

In this analysis there is nothing that throws the slightest light on dementia præcox, especially the quotation from St. Paul and quite definitely any notions of "the good life." Perhaps if Grace, the patient in the case, had been a "bad" girl, she might not have developed dementia præcox, but this the reviewer does not seriously contend. But the reviewer is certain that the patient's morality or immorality had nothing to do with dementia præcox, certainly in its genesis.

All one can say of this book is that it represents a type of writing which should disappear from psychiatry. This may sound like a very harsh statement, but the reviewer, for one, wishes to protest against any identification of mental hygiene, which is a branch of psychiatry, with homilies, philosophy, theology, metaphysics, and lyrical or dramatic poetry.

The reviewer protests against any assumption that we know the genesis of the neuroses at the present time; and insists that the facile solutions that they are wish-fulfillments, escapes from reality brought about by fixations on mother or father, or due to inadequate training or the lack of religious instruction in the home, have no scientific basis. The neuroses constitute one of the major problems of medicine, not yet understood and not yet treated in any adequate way. Witness the fact that about the same success is obtained by the Christian Scientist, the osteopath, the Freudian, the mental hygienist, and the regular orthodox neuro-psychiatrist. Preachy books have no place in psychiatry. The adherence to, or non-adherence to, the conventional code of morals and the conventional code of living has nothing to do with the development of any mental disease whatever, except general paresis, and even here, it is the trepanoma and not immorality which is responsible. All kinds of books are being written to show that people wish themselves into mental disease and the neuroses, and that consequently they can, so to speak, be wished out by a prolonged process of treatment, mental hygiene, and what have you.

It is probably true that the emotions, and the social conditioning processes which operate on the various types of individuals, produce abnormal states of one kind or another. It is also true that the social circumstances surrounding

any individual are made up of many complex, interweaving factors; that nothing short of a research involving a long period of time and controlled by thousands of cases would give us any hint as to what factors are involved in each case. For example, it is quite facilely believed by many psychiatrists that an over-indulgent home produces neurosis. So far as the reviewer has seen, no psychiatrist has thought it worth his while to make a comparative study of the over-indulgent home, the normal indulgent home, and the under-indulgent home as to the number of neuroses produced. The "reasoning," which is so conspicuous, is as follows: *Here is an over-indulgent home, which presumably has weakened character; consequently, the neurosis which has appeared is due to the over-indulgent home.* This type of reasoning has no place in science and is a violation of all the principles which have been laid down and found workable in other departments of scientific activity.

The book is interesting. The emotion of the author is evidently genuine; apparently he believes what he says, although he says contradictory things. The book may be of value in helping people organize their lives. Starting out as it does with principles which are philosophic, metaphysical, and homiletic, it has no claim to be regarded as scientific.

ABRAHAM MYERSON.

SCHIZOPHRENIA. STATISTICAL STUDIES FROM THE BOSTON PSYCHOPATHIC HOSPITAL. (Concord, N. H.: Rumford Press, 1934.)

This volume comprises a special collection of communications from the Boston Psychopathic Hospital, dating from 1925 to 1934. Most of these had been previously published in discrete form elsewhere but several had not been, or appeared only in abstract. If only for this latter reason the volume is welcome, wholly aside from the convenience of having together, within a single cover, a series of interesting and important papers emanating from the same group of workers. These contributions are of especial significance, too, in that for the most part they involve important use of the statistical method. Likewise, as Dr. Campbell points out, they well serve to emphasize the importance of record form and content, if case material is to be made properly available for investigative and interpretive purposes.

While, to be sure, all of the studies merit close attention, their number is too large to permit adequate individual discussion here. Accordingly, in a practical way, to afford some specific indication of the nature of the material, the following condensed listing is appended:

Scientist and Psychiatrist, Wilson; Statistical Comparison of Psychiatric Diagnoses, Massachusetts State Hospitals, Wilson & Deming; Further Statistical Comparison of Psychiatric Diagnoses, Wilson & Raymond; Note on preceding paper, Raymond; Discussion of some Errors in Diagnosis of Schizophrenia, Campbell; Application of Statistical Method to Study of Mental Disease, Elkind & Doering; Epidemiology of Mental Disease, Elkind & Doering; Reliability of Observation in Psychiatric and Related Characteristics, Doering & Raymond; Additional Note on Reliability, Doering & Ray-

mond; Clinical Variables in Schizoid Personalities, Kasanin & Rosen; Physical Findings in Schizophrenia, Bowman & Raymond; Statistical Study of Delusions in Manic-Depressive Psychoses, Bowman & Raymond; Statistical Study of Hallucinations in Manic-Depressive Psychoses, Bowman & Raymond; Acute Schizoaffective Psychoses, Kasanin; Statistical Study of Personality in Schizophrenics, Bowman & Raymond; Constitutional Schizophrenia, Bowman & Kasanin; Study of Functional Psychoses in Childhood, Kasanin & Kaufman; Study of the School Adjustments of Children Later Becoming Psychotic, Kasanin & Veo; Observations on Rôle of Environmental Factors in Schizophrenic Conditions, Campbell; Personality and Psychoses, Campbell; Study of Pre-Psychotic Personality in Certain Psychoses, Bowman.

T. R.

PSYCHOLOGY, A FACTUAL TEXTBOOK. By *E. G. Boring, H. S. Langfeld, H. P. Wild, and Collaborators.* (New York: John Wiley & Sons, Inc., 1935.)

The appearance of another textbook in elementary psychology is in itself of no very great interest. But the book under review constitutes a distinct exception to the general rule.

In the first place, the reader is challenged by the title "A Factual Textbook." A typical response is to seek for the significance of this phrase by conjuring up possible contrasts. Does it imply "factual" as opposed to "factional"? Have we here a plea for eclecticism, rather than evangelism? Are we growing tired of the "battle of behaviorism," the warring of the schools, the subtleties of systematic debate and the emotional outbursts of controversy? Should we not return, in psychology, to a solid basis of fact, leaving the McDougalls, the Watsons, the Köhlers with their argumentative problems, while we push forward with workmanlike cooperation—or at least consolidate the position of our science by a careful review of the facts so far achieved?

This first impression is given point when we note that the preface boldly asserts that "Experimental psychology has reached the stage of maturity"—and that therefore the "vast amount of well-substantiated fact which forms the basis of science . . . . should be presented to the young student of psychology in terms free from the bias of metaphysical presuppositions or of psychological systems." In this connection, it is interesting to recall that Professor Murchison, in his preface to *Psychologies of 1930,* makes a parallel but contrasting statement as follows: "Now that psychology is rapidly coming of age, it is no longer a symbol of maturity for a psychologist to neglect the theoretical foundations of his science. Those who have suggested that it is futile to examine theoretically the hypotheses on which all experimental work is based have not been obeyed during the preparation of this volume, but are being quietly left to the tender mercies of time."

In presenting this contrast, we do not wish to imply that our authors entirely overlook the significance of systematic bases, or that Professor Murchison neglects the importance of so-called factual outcomes of experimentation. But that the two books, so different in their fundamental purposes, should justify themselves by advancing the same plea of "maturity in psychology,"

very definitely seems to imply the distinction between the factualists and the factionalists to which we have referred above.

In the second place, any one who has reflected upon the condition of psychology in the immediate present, will probably be confirmed in his opinion that we are passing through a period of comparative doldrums. Not that the science has lost any of its interest, enthusiasm, and energy. But, having become accustomed to the shocks of Freudianism, behaviorism, configurationism and the like in rapid succession, to the theories of mass action, to *g*, and to organismic process, each with its demands for re-thinking our psychological formulations, we seem to miss the excitement during a period of consolidation. Even child study and genetic psychology, having won for themselves universal recognition, are busy in their laboratories rather than convincing the reactionary. Hence, with theoretical novelties in the background, the factualists come to the fore. (Incidentally, it will be interesting to see how long we have to wait for the third volume in the series "Psychologies of 1925, of 1930. . . . .)

There is a naïveté about all this which perhaps shows, more than anything else, a real need for clarification of basic postulates, for a more comprehensive reformulation of our psychological position. To a degree this can be achieved only after a very careful appraisal of advances to date, as this book implies. But the danger is that the underlying theoretical bases—without which these advances could never have been made—will be given but scant consideration. And this would, of course, be fatal to further progress. Critical thought is necessary at all times—a very different thing from controversy.

None the less, the beginning student must be apprised of the facts of psychology; and, as far as this book goes, it is excellently done. The emphasis on the content of psychology will, of course, give to it a somewhat unformed appearance, which will not be satistactory to the formalist. The latter will probably be critical of the inclusion of much that can hardly be called "psychology" unless psychology is actually defined in terms of one or other of the "schools"; of the undue emphasis on neural mechanisms, on sensory details and the like—"facts" that the student of psychology must, of course, know, but that hardly constitute psychology-proper. He will likewise feel tempted to suggest that the most significant parts of the book are those where theoretical bases are permitted to shine through the presentation most clearly, and to give a meaningful setting to the "facts." But in the end he will probably realize that the completed effort of 19 contributors—most of whom are recognized leaders in their respective fields—has a surprisingly high degree of unity that pays tribute to the three authors; that the general sequence is quite familiar, beginning as it does with "The Nature of Psychology," "The Response Mechanisms," "Sensory Phenomena," and ending with a typical textbook discussion of "The Personality." And since this is an introductory text, he will probably be content to leave the systematization of these "facts" to students more advanced than those for whom the book is intended. If not, he should come forward with a more satisfactory solution to the problem of teaching introductory psychology than has yet been offered.

The book is very readable, somewhat dogmatic where a definite position seems to give a more "factual" appearance than a tentative statement would suggest, very comprehensive and up-to-date. The references are well chosen from the point of view of the interpreter of the book, although many of them lie beyond the range of the beginning student. Where emphases appear to have been misplaced, the special bent of the instructor should be able to supply the correctives.

W. LINE,
University of Toronto.

PSYCHOANALYSIS FOR TEACHERS AND PARENTS. By *Anna Freud*, translated by *Barbara Law*. (New York: Emerson Books, Inc., 1935.)

This little book of 112 pages contains four addresses given by Anna Freud before the teachers at the Children's Centres of Vienna. She presents, with considerable fluency and apparent simplicity, some psychoanalytic principles of child development.

The application of these principles to education results in some astonishing discoveries. Educators will be interested to learn that the teachers in the Children's Centres of Vienna "know that the sexual instinct which bursts forth anew in puberty and overwhelms the child with its force, marks also the end of his educability." Those interested in the graphic and plastic acts will be edified by the following: "The little child who has enjoyed playing about with his own excreta need not completely forego this pleasure in order to escape blame from his teacher. He can seek a substitute for this pleasure, finding, for example, in games with sand and water a substitute for his preoccupation with urine and fæces. . . . . The pleasure in smearing things is, as we have already indicated, continued in the use of paints and colored chalks."

Freud's part in emphasizing the importance of the early training of children is generally recognized, but we are surprised indeed to learn that "we have every reason to assume that previous to the discoveries of psychoanalysis the experts would have decided otherwise" in a legal case in which psychoanalytic and "orthodox" specialists agreed that the education of a child begins with his first day of life.

One must be a psychoanalyst to understand these things. In this reviewer's opinion it is regrettable that this book should be made available to teachers and parents, who are generally not in a position to assess its scientific pretensions at their true worth.

C. G. STOGDILL.

YOGA AND WESTERN PSYCHOLOGY. By *Geraldine Coster*. (London: Oxford University Press, 1934.)

In this small, compact monograph, the author compares western psychology as exemplified by psychoanalysis with the older and more complex philosophical religious system of Yoga. She points out the limitations of psychoanalysis by insisting that people want something more than a successful ad-

justment to a given environment or a solution of some neurotic conflicts. People are so organized that they wish to find outlets for spiritual, creative urges, these have to be satisfied, but the present-day philosophies give no avenues for satisfaction. The various religious systems of the west are also not satisfactory because they are too formalistic, dogmatic, and especially because they do not give opportunities for self-analysis which is a part and parcel of every thinking man. Assuming that there is a mystic urge in all of us, Yoga can perhaps be suited to the demands of our civilization. In the first part of the book the author presents the present-day status of psychoanalysis and this is done carefully, intelligently and quite fairly.

Part II is devoted to the discussion of the basic principles of the Patanjali philosophy, and the third part is devoted to the comparison of the two systems of thinking. There are several schools of Yoga, the author limiting herself to the system expounded by Patanjali, known as the Rajah Yoga, which has the widest acceptance in India and which includes the major principles of the other six systems. Although Patanjali developed his system two centuries before Christ, Yoga was probably practiced for many centuries before. Yoga is not a training in the tenets of any religious faith but an exercise of the spiritual faculties of man, an expression of his capacity to deal with spiritual realities. Yoga does not tell you what to believe but tells you how to achieve. Consequently it is free from dogma or any form of morality. The author has done a great service by putting in clear language the main Sutras of the four books of Patanjali with her own interpretations as to their meaning. It is interesting that in common with psychoanalysis Yoga stresses the fact tnat a good deal of our thinking is emotional rather than intellectual and Yoga stresses the necessity of analysis of "confused thinking." Even the strange rituals of relaxation can find their counterpart in psychoanalysis where the patient has to relax on the couch during the analytic hour. In making a plea for Yoga the author states that it contains all that is valuable in analysis through the process of self-knowledge but in addition it goes beyond it and gives an aim and direction to life which psychoanalysis does not. The aim of Yoga is complete "liberation" with acquisition of higher spiritual powers. There are several points, however, which raise some doubts in the reviewer's mind. The Sutras of Yoga are expressed in such a vague and obscure language that one wonders if the author does not read in them meanings which perhaps are not there. However, this can only be learned by reviewing the other commentators of the Sutras. The author herself states that the other students have not found in Yoga the same meanings as she has found because they had approached the subject from the philosophical or religious point of view rather than the psychological point of view. When she speaks about "concentration on the opposite" and the mortification of the flesh one wonders if such procedures can ever result in giving up earlier infantile wishes and anxieties, and to the western mind the reduction to a state, when one has no desires, is hard to conceive. It seems that the east gives up "attachments to life" by transcending life itself through resignation, withdrawal, meditation and trance, whereas the west hopes to find its happiness in struggle, modification and sublimation. The author maintains that

there is no unified opinion as to the aims of analysis in normal people, while in Yoga the aim is quite clear and consists in reaching a state of Kaivala or liberation. She states herself, however, that this state is not definable in words to those who never experienced it and all attempts to define it are unsatisfactory. This is partly due to the fact that one has to assume a super-physical existence which to a non-mystic is difficult to accept.

The comparison between psychoanalysis and Yoga and especially the implication of the basic difference between the eastern and western philosophies and modes of thought is so well expressed by the author that the volume deserves wide recognition.

J. KASANIN,
Howard, Rhode Island.

WISH-HUNTING IN THE UNCONSCIOUS. By *Milton Harrington, M. D.* (New York: The Macmillan Company, 1934.)

In this compact 185 page octavo, Dr. Harrington essays an appraisal of the psychoanalytic concept and procedure. The style is concise, alive, clear and wholly free from technicality. The presentation is an eminently popular one, readily understandable to the layman for which group the book will undoubtedly have most appeal.

The material is organized into six chapters, titled as follows: Theory of Psychoanalysis; Technique of Psychoanalysis; How the Psychoanalyst Proves His Case; Practical Value of Psychoanalysis; Popular Success of Psychoanalysis; Alternative to Psychoanalysis.

In his approach, however, the author introduces little of novelty, raising the usual objections made to psychoanalysis; thus, among others, lack of scientific basis, arbitrariness, unilaterality as to causation, negative implications of transference, and lack of significant therapeutic efficacy. While admittedly these objections are not without merit, it does seem the criticism indicated is a constructive rather than an, in effect, flatly negative or destructive one. The treatment also is characterized by a certain tendency to over-simplification which, in definite measure, detracts from its effectiveness. Through the above, conclusions are reached which, in the light of developments thus far, lead one to pause and question, as for example: "A little longer and psychoanalysis will be well on its way to oblivion to join the fads and follies of yester-year."

As an alternative to psychoanalysis Dr. Harrington suggests mental hygiene, "right living," applied on the basis of a psychology "mechanistic" in its nature as opposed to the "motivistic" psychology of psychoanalysis. This discussion is interesting and stimulating. However, it does seem to the reviewer that in spite of its still formative and imperfect state, psychoanalysis has much validly to contribute to a true and fully inclusive conception of mental hygiene.

THEOPHILE RAPHAEL.

HANDEDNESS: RIGHT AND LEFT. By *Ira S. Wile, M. D.* (Boston: Lothrop, Lee and Shepard Company, 1934.)

This is a most comprehensive and scholarly treatment of preferential handedness, written from a point of view different from that usually encountered in books on this subject. As the author states in his introduction, it is not a technical discussion of right- and left-handedness, but a consideration of the biologic and social factors which enter in the subject of handedness, in an endeavor to ascertain why one hand is preferred for common usage and why another is stigmatized as unworthy.

In the chapter on hand preferences of primitive man, the author presents evidence from instruments, implements, art forms and language of the prehistoric, ancient and primitive races, most of which supports the view that primitive man was primarily ambidextrous. Evidence also indicates that during the Bronze Age there was apparently an alteration, as instruments of that period show a marked right hand preference. A variety of facts is presented to show that hand preference has grown with the cultivation of various races, from the non-preferential man of the Stone Age to modern times. Right-hand dominance became more marked, due less to hereditary factors than to special compulsions.

In the chapter on philology and hands, the author traces the philologic path of the words sinister and dexter, left and right, in an endeavor to find their origins and meanings and thus cast light upon hand preferences as a biologic-social phenomenon. Evidence gleaned from many sources indicates a wide-spread prevalence of an identical meaning of right-handed and left-handed. Words, many, various, reveal on the whole the social rejection of the idea of left, and equally vigorous terms express the favor enjoyed by the right.

An excellent critical presentation is given in the chapter on the prevalence of right and left hand preferences, of the statistical data and interpretations thereof that have been presented by various authorities regarding the incidence of left-handedness, variation with age, sex differences, and relation of left-handedness to mental deficiency. The author points out the great diversity of estimates of left-handedness found by these investigators, which he attributes to the fact that different criteria of handedness are used. He stresses the importance of getting figures which indicate biological trends rather than data derived from groups in the community which yield to social pressure, in order to include the latent as well as the overt left-handers.

The wide range of causes that has been advanced to account for preferential handedness is reviewed and critically evaluated in the chapter on theories of causation. The reasons for the preferential handedness of today inhere in causes buried in the remote beginnings of the race. However, the author considers the following theory: that some need resulted in the selection of one hand for special activity, that the growth of a sense of ease and of readiness in action fostered preference of one hand or the other; that repeated hand preference in activity led to a further specialization in handedness, in turn promoting greater deftness, strength, endurance—and in turn, the side of the brain in which the control o the hand was vested enlarged its ascendency over the other side. "We may employ the term heredity," he states, "but

as to when and how heredity came to operate, there is no explanation." While carefully evaluating the various theories concerning the method of transmission, he himself adheres to the view that left-handedness follows very closely the Mendelian law of inheritance.

The earth's movement is considered as a factor in handedness. The rotation of the earth about the sun, the relation of man's activities toward the return of the sun, and possibly, the rotational deflective pressure towards the sun, all may have played a part in determining the dominance of the human right hand and its social values. Heliotropism and heliocentrism are considered as two factors in preferential handedness. The influences of solar activity upon various forms of plant and animal life are shown, even with respect to their habits of handedness. Man's turning toward the sun for biologic reasons and for social purposes, and the resultant effect upon eyedness and handedness, are discussed.

In the chapter on the "luck idea" and hand preference the author gives evidence from folk-lore, customs, practices, and the popular sayings of many races, showing the extent to which the left is considered sinister or unlucky, and the right "good luck." The luck concept is related to the sun, the source of light and life. During the ancient days the side turned towards the east and the sun was generally regarded as lucky and of good omen. The Greeks faced north for their omens, the Romans faced south; hence to the Greeks the right and to the Romans the left became the lucky side. In due time, however, the Greek idea prevailed and the right became fixed in European folk-lore as the lucky side, while the left was regarded as unlucky. This preference was connected also with the "apparent" course of the sun from the east to west; thus the sunwise course was on the right hand and objects kept on the sun side were of good omen; if on the other or left side, the omen was evil.

The luck idea early penetrated very deeply into most human affairs, first fastened upon amulets to offset the evil eye, and then gradually developed into profound magical beliefs and ceremonies. In the chapter on magic and hand values the author reviews the various forms of magic found among savages, primitive and ancient races, and so-called modern people. Many inconsistencies in hand usages are noted; however, on the whole, the right side was powerful in magic, although the left side was often used to increase the force of the sinister magical appeal or action, or to propitiate or frustrate the evil. The field of magic also reveals that handedness was dependent upon the primary relationship of the people to the sun. The right was most generally the side of the favoring gods.

In the chapter on religion and hand symbolism, the author considers material showing the solar-religious, social man relationships that definitely foster preferential hand usages and establish their values for man and for society. Religious necessities made it inevitable that one of the two hands should predominate activity, but in themselves did not determine which was to be the privileged hand. The positions right and left may be explained in terms of religious orientation and the solar cult, because man, in his prayers and ceremonies, naturally and faithfully looks towards the east, the source of all life. The sides of the body following the apparent course of the sun became

right, as towards the sun, and wrong, as away from the sun. This served to introduce ideas that became attached to the sacred, bright, right side, and the profane, sinister, left side. In definitely religious activities the right side came to possess the greater power and importance. Many examples are given of religious practices of different races with reference to the rising sun, the setting sun and the circuit through the heavens, showing the stress placed upon the right hand in these practices. The religious practices, as well as the ideas of luck and magic, exerted influence upon man's ideas of right and left-hand values. "Social belief affected religious practices, and religious ideas entered into social customs."

In the final chapter entitled "Right or Left?" the author discusses the practical implications of handedness for everyday life in our right-handed world. This discussion is quite general in nature, showing the conclusions he has reached on the basis of his clinical experience with children. He points out the effects of left-handedness upon human behavior and personality, and the great difficulties under which the left-hander and the converted left-hander labor in this right-handed world. He opposes coercive right-handed training of children who are normally sinistral, stressing the dangers of resultant personality disorders. As environmental influences operate so early in the life of the child, and thus affect any innate or hereditary factor, the reviewer would be interested, as no doubt would be all educators as well as parents, in knowing the author's views regarding the age at which "innate hand dominance" may be detected, and what methods of detecting this dominance are most valuable.

JULIA HEIL HEINLEIN,
Florida State College for Women.

STAMMERING AND ALLIED DISORDERS. By *C. S. Bluemel, M. D.* (New York: The Macmillan Company, 1935.)

It is stated in the introduction that "this book presents the author's investigations of stammering from the point of view of psychology and neurophysiology, the basis of the study being the conditioned reflex and inhibition." It has become more and more fashionable to explain all sorts of behavior in terms of the conditioned reflex since Pavlov's work became known, and some of the explanations seem valid. One doubts if within the space of 20 pages anyone has described the conditioned or associated reflex and its variations as clearly as is done in the second chapter by this author. He points out that the conditioned response is a normal reaction by which the organism adjusts to its environment. Sometimes, however, the association between stimulus and response may be abnormal and may lead to maladjustment.

The development of oral and visual language is traced, and it is stated that speech is a conditioned reflex just as any other acquired habit, and that it is subject to the influence of inhibition. The author says, "In the early stage of speech there is much uncertainty of articulation, for the conditioned reflex is merely in the process of becoming established and it is far from being a fixed response. The speech reflex is, in fact, quite unstable in the early years of life and a severe shock may quite obliterate (inhibit) it." Inhibition, he illustrates from experiments with newly hatched chicks, with fishes, and with dogs. In the latter instance references are made to precise laboratory studies

of Pavlov, showing how dogs can differentiate between positive and negative stimuli, and how associated responses may be delayed. Something is quenched or blocked or inhibited. This inhibition is regarded by Pavlov as physiological rather than a memory process. The author regards inhibition as "a primary function of the nervous system by which reaction is checked or held within bounds. It is a checking or controlling mechanism."

It is shown clearly that a conflict can be produced experimentally between conditioned reflex and inhibition, and that the animal in such conflict shows evident distress. Some psychological experiments quoted illustrate the agitation in humans shown in a conflict between reaction and inhibition. This is of definite importance in the studies on stammering.

The fact that emotional shock may lead to speech disturbances is illustrated by case references from French, German, Russian and English observers. "There is a broad recognition of the relationship between shock and stammering that has been long established." The inhibition of speech resulting from powerful external stimuli may be complete, or it may be partial, with resultant stammering. Stammering usually begins in early childhood before the habit of speech is firmly established and it is especially easily inhibited then. In many cases when the inhibition subsides, speech is actually reestablished. Stammering so set up Bluemel regards as primary stammering. Secondary stammering is dissimilar and much more complex due to emotional conditioning. A whole chapter is devoted to what the author regards as secondary stammering. This is a new point of view as no differentiation is made by those who hold to the emotional theory and who regard stammering in any form as a symptom of maladjustment.

After dealing with clinical aspects of inhibition, fear and self-consciousness and various theories of stammering, Dr. Bluemel devotes his final chapter to the treatment of stammering. He emphasizes as cardinal principles:

I. Tranquillization. Sleep, rest, sedatives and patterns of composure are of value in lessening the effects of inhibition.
II. Reinforcement of the conditioned reflex.
III. Auditory stimuli.
IV. Unconditioning.
V. Outside contacts.

The hints given are definitely valuable.

One feels that Dr. Bluemel has made a distinct contribution in writing this book. There is nothing of mysticism about it. He denounces commercial "methods" and "systems" which have for so long been a pitfall for stammerers who have had up to the present so few reliable sources of treatment.

E. P. Lewis,
Toronto.

Sex Practice in Marriage. By *C. B. S. Evans, M. D.* (New York: Emerson Books, Inc., 1935.)

This little book of 125 pages is divided into five sections. The first section begins with "The Bride and Groom," and describes the nervousness of the young bride on the night of her marriage. It is delightfully written, couched

in simple language, and the problem beautifully handled. The second section deals with "Frigidity—'The Cold Wife,'" the subject being considered under three headings; the mental, physical and psychic barriers. The author, amongst other things, gives some very sensible advice. In the physical barrier he mentions the use of female sex hormones for those women with sexual underdevelopment. The third section is "The Unsatisfied Wife." With indifferent success the reviewer has tried to review this section. That part of the chapter given over to clitoris stimulation savors much too much of masturbation, and whilst it may be necessary for perfect union the results might be far-reaching such as are all masturbation sequelæ. Section four on "Married Courtship" contains useful hints on sexual cleanliness and preliminary courtship prior to intercourse. Section five on the perfect physical expression of love is a description of the position in which coitus may take place.

J. W. JOHNSTON.

PSYCHIATRIC WORD BOOK. By *Richard H. Hutchings, M. D.* (Utica: The State Hospitals Press, 1935.)

This convenient-sized pocket lexicon is now in its somewhat enlarged fourth edition (212 pages). It contains brief and clear definitions of the usual psychiatric terms and of a good many unusual ones. It is one of the sins of the dictionaries that they encourage the procreation and acceptance of neologisms which may or may not be useful as expressing thought, but which may undoubtedly add to the perplexities of students of new disciplines.

That the present volume has been found serviceable is attested by its successive editions, and in its present flexible leather bound form it is an attractive desk book for the student. C. B. F.

I KNEW 3000 LUNATICS. By *Victor R. Small, M. D.* (New York: Farrar and Rinehart, Inc., 1935.)

It is the epoch when not only patients feel the urge to have their experiences printed after they leave mental hospitals; but doctors also feel impelled to tell the story of their work. In our time the mental hospital has been not only popularized but dramatized; it is the period of the psychiatric best seller.

The present volume is the fruit, the author tells us, of his six years' service on the staff of a state hospital. He entered this service with no previous knowledge of psychiatry; they may therefore properly be called his apprentice years. The narrative is instructive in recounting the phases of the author's experience as he acquired it within the hospital walls and the changing viewpoints which such an experience would involve. Whether such an autobiographical record makes worth while reading will depend upon the artistry of the writer.

But this book discusses also the various forms of mental illness represented by the population in a state institution. The work is obviously not intended as a textbook in mental disease, and the usefulness of popular discussion of these things is open to question. Possibly one is prejudiced against this book by its title, which in the opinion of the present reviewer is in distinctly bad taste, and one wonders whether the work serves any considerable purpose other than as a producer of revenue. C. B. F.

In Memoriam.

ISAAC LOUIS POLOZKER.

1873-1935.

At the age of 63, Dr. Isaac Louis Polozker, director of the psychopathic clinic of the Recorder's Court of Detroit, died in that city on August 21, 1935.

Dr. Polozker was born in 1873 in Grodno, Russia, and came to this country in 1889. He was a graduate of the College of the City of New York and of the Detroit College of Medicine in 1897. He studied in Vienna from 1900 to 1902 and on his return became a teacher of psysiology in the Detroit College of Medicine. He continued as a member of the faculty of that school until his death.

Following several years of practice in the field of pediatrics, he became interested in psychiatry and from then on his medical activities were largely confined to that field. For 30 years he was connected with the Wayne County Hospital at Eloise and during the latter part of this period he served as chief psychiatrist to that institution. He was prominently identified with public psychiatric service in Detroit, giving freely of his time to a wide range of charitable organizations. He was attending physician of the Detroit Receiving Hospital, neuropsychiatrist at St. Mary's Hospital and participated much in medico-legal practice in the courts. Since 1930 he was director of the Psychopathic Clinic of the Recorder's Court.

Dr. Polozker was a Fellow of the American Psychiatric Association; a Fellow of the American Medical Association and held membership in the American College of Physicians, the Detroit Society of Neurology and Psychiatry, the Wayne County Medical Society, the Michigan State Medical Society and the American Teachers' Society.

J. C. M.

MORTIMER WILLIAMS RAYNOR.

1879-1935.

Mortimer Williams Raynor, medical director of Bloomingdale Hospital, professor of clinical psychiatry in Cornell University Medical College and consulting psychiatrist to the New York Hospital, died of a coronary thrombosis at his residence in White Plains on October 5, 1935, at the age of 56.

He was born in Syracuse, N. Y., where he attended public and private schools, and was graduated in medicine from Syracuse University in 1904. He interned in the Newark City Hospital and the Kings County Hospital of Brooklyn. He then served in the Hudson River State Hospital at Poughkeepsie as junior, assistant and senior assistant physician. From 1917 to 1923 he was director of clinical psychiatry, and the next year first assistant physician of the Manhattan State Hospital on Ward's Island. From 1924 to 1926 he was medical superintendent of the Kings Park State Hospital and from there went to Bloomingdale Hospital.

His service to the state was broken by a leave of absence which was divided between the City of New York and the army. In 1917 the city administration was studying criminals with a view to better understandng and management of their problems. Dr. Raynor was appointed the first psychiatrist to the penitentiary on Welfare Island where his work made a considerable contribution. The project was cut short by the War and Dr. Raynor was commissioned captain in the Medical Corps and assigned to neuropsychiatry. After four months at Camp Meade he went to France as psychiatrist to the 79th Division. His work in this field won official recognition not only by promotion to a majority but also in an official letter from the commanding general of his division.

Dr. Raynor gave his time unstintingly to medical interests and his services were often in demand by other organizations. He was president of the New York Society for Clinical Psychiatry in 1930-31, of the New York Psychiatric Society in 1932-33, and of the Westchester County Medical Society in 1933-34. He was a Fellow of the New York Academy of Medicine, the American Medical Association, and the American Psychiatric Association; a member of the New York Neurological Society, of the National Association for Research in Nervous and Mental Diseases, and

the New York Society for Psychotherapy and Psychopathology. From 1928 he was chairman of the executive committee of the Mental Hygiene Committee of the State Charities Aid Association. He was also a member of the American Occupational Therapy Association and the National Committee for Mental Hygiene. While living in Poughkeepsie he was consultant psychiatrist and neurologist to St. Frances' Hospital. From 1920 to 1924 he was consultant to the New York City Children's Hospital on Randall's Island. He was clinical professor of psychiatry at the College of Physicians and Surgeons (Columbia University) from 1922 to 1928. He then became professor of clinical psychiatry in the Cornell Medical College. He was visiting neurologist to Letchworth Village, and since 1930 was consultant in psychiatry to Grasslands Hospital, Valhalla. In 1929 and 1930 he was a member of the Board of Visitors of the New York State Reformatory at Bedford. As a member of the Quarterly Conference of the State Hospital Commission he served on the committees on construction, legislation, and personnel. He was a member of commissions for examination of condemned criminals in 1925 and 1933.

Dr. Raynor made many contributions to the advancement of psychiatry. Under his direction at the Manhattan State Hospital the first diagnostic clinic in a mental hospital was organized. He was a constant proponent of the idea that the patient should be regarded as a whole and that no method of physical or mental diagnosis or treatment should be overlooked in endeavoring to solve the patient's problems. Throughout his career he devoted himself to teaching and research as well as to care of the sick. Under him Bloomingdale Hospital was approved by the American Medical Association as a place for the education of specialists in psychiatry. His administration was marked by advance in the facilities of the hospital, in organization, and in the treatment of the patients. Under him the hospital devoted itself to a program of concentrating on curative rather than custodial care and in the development of a social environment that would in itself be conducive to recovery. He was active in coordinating the work of the Payne Whitney Psychiatric Clinic, which is a part of the New York Hospital, with that of Bloomingdale Hospital. One of his main interests was the education of the medical profession and the

public with regard to the possibilities of preventing and curing mental disease.

He joined this Association in 1909. He was serving his third term on the Committee on Psychiatric Nursing and Therapy, and since 1927 had been a member of the Committee on Medical Services, now the Committee on Hospitals. He had served recently as an auditor.

Dr. Raynor was a member of the White Plains Presbyterian Church and the White Plains University Club. On July 21, 1917 he married Jessie Clarissa Close who survives him with a son, John Mortimer.

Such a vigorous character, always planning and working for the welfare of his fellowmen, commanded respect and admiration. But those who knew Dr. Raynor found him not only strong and stable; he was likewise hospitable, genial, humorous, a delightful companion. His friendship was practical and helpful; it was also tolerant, considerate, enduring. He met peril boldly, discouraged talk about his illness and always kept his face toward the future.

SAMUEL W. HAMILTON.

TRAUMATIC PSYCHOSES.

A Study of Fifty Committed Cases.*

By CLARENCE A. BONNER, M. D.,
Superintendent,

AND

LOIS E. TAYLOR, M. D.,
Danvers State Hospital, Hathorne, Mass.

The commonness of head injuries in this time of rapid transportation prompted the preparation of this article, which has to do especially with those head injuries which later have led to the development of psychoses. Since 1900 there have been numerous contributions to the subject, but in 1903 Adolf Meyer [1] called attention to a classification of the traumatic psychoses that has been useful and eminently satisfactory. He specified clinical types as follows with certain sub-headings that have been omitted here:

A. Traumatic delirium.
B. Traumatic constitution.
C. Post-traumatic mental enfeeblement.
D. Other types.

The diagnosis in the following cases has been restricted to those showing a psychotic reaction brought about by brain or head injury as a result of force directly or indirectly applied to the head.[2] Throughout the literature expressed in various ways by different authors is the uncertainty concerning the relationship between the force applied and its subsequent action upon the brain. Wechsler [3] says: "It is well-known that a person may receive a severe blow

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

[1] Meyer, Adolf: "The Anatomical Facts and Clinical Varieties of Traumatic Insanity."

[2] Statistical Manual for Use of Hospitals for Mental Diseases.

[3] Wechsler, I. S.: "Trauma and the Nervous System." Journal of the American Medical Association, February 16, 1935.

to the skull and sustain no fracture and no injury to the brain; he may receive a comparatively light blow and sustain both fracture of the skull and injury to the brain; he may sustain a fracture and no brain damage; he may have no fracture and yet have severe injury to the brain. A person may even receive no direct blow and still suffer grave cerebral injury." Hengstler [4] describes it in this way: "In the consideration of what actually happens to the intracranial contents in a head injury, one must learn two vitally important facts: 1. A very bad brain injury may occur without a fracture of the skull. 2. Extensive skull fractures may take place without any actual injury to the brain or its coverings." Allen [5] says in part: "Let us remember that we are interested in the amount of brain injury and that the presence or absence of fracture of the skull is of importance largely from the amount of present or future injury to the brain which it may cause."

This presentation is based on the study of 50 cases committed to the Danvers State Hospital and diagnosed traumatic psychoses. These comprise the entire group of such cases admitted during the last 16 years and make up about one-half of one per cent of the total number of first admissions. This fact indicates the relative rarity in occurrence of this form of psychosis.

There were 45 males and 5 females in this series. Nearly one-half of these cases were the result of automobile accidents, less than one-third were due to falls, a few to direct physical violence, and the others to miscellaneous accidents.

The greater number of the patients appear to have had a normal personality and good social adjustment, while 12 showed such defects as noticeable irritability or seclusive tendencies. The characteristics of the remaining few could not be determined from the records.

With the single exception of a lawyer, all of these patients were either middle-class tradespeople or laborers.

Nine of the cases were found to have used alcohol excessively prior to their injury and in half of this number, heavy drinking was probably directly responsible for the accident. In the remaining cases over-indulgence in alcohol was not a definite factor in

[4] Hengstler, W. H.: "The Neurological Aspect of Head Injuries." Minnesota Medicine, June, 1931.

[5] Allen, Lyman: Head Injuries; October, 1933.

the causation of the trauma. There were also two cases of morphine addiction in the series, but this factor seemed to have had little or no relation to the accident itself.

Twenty-four of these patients sustained definite fracture of the skull. An equal number had head injuries without fracture, while the remaining two had injuries to other parts of the body than the head.

In about one-quarter of the cases there was no period of unconsciousness, while in the others the unconsciousness lasted for periods varying from less than one-half hour to six weeks. The majority of the cases were included in the shorter periods of unconsciousness.

Delirium and excitement were present in nearly all of the cases.

Three of the cases were diagnosed traumatic epilepsy, and several others had one or more convulsions which, however, were not persistent.

Headache and dizziness were prominent in about one-half of the cases and persisted indefinitely in these instances.

Practically the entire number showed definitely abnormal neurological findings after admission to the Danvers State Hospital.

A persisting amnesia for the accident and the time-period closely associated with it was noted in over one-half of the cases.

As to the mental picture on admission, it was found that less than half of the patients were correctly oriented, while the majority showed more or less disorientation.

The majority of the cases gave no indication of the presence of hallucinations or delusions.

The post-traumatic personality changes, as observed at the Danvers State Hospital, showed that most of the patients were affected and that the changes continued in a greater or lesser degree during their entire hospital residence.

The greater number of cases developing a psychosis did so within the first year after the accident, although six developed within five to ten years and a few within much longer periods.

The average length of stay for the cases of fracture of the skull was nearly two years. The patients with head injury remained for an average period of a little over a year and those with other bodily injury for about one month. The average length of stay for the entire group was about a year and one-half.

Thirty of the cases were regularly discharged. Nine died while in the hospital; four of these deaths were due to their injuries and the others were not due primarily to trauma. Seven of the patients are still in residence, one was transferred to another state hospital, two are on escape, and the other is away from the hospital at the present time on indefinite visit.

A social service investigation of the present condition of the 30 patients who were discharged and two who escaped from the hospital showed that eight of the patients have made an apparently complete recovery from their psychosis, 15 have improved, two have shown practically no improvement, five have died, and the present condition of the others is unknown. Of those who died it is probable in one case only that the accident was a factor in the fatal outcome.

About a third of the patients were able to resume their former work after leaving the hospital, 13 have been unable to do the particular kind of work in which they were formerly engaged, and the rest have worked irregularly or at a less complex type of employment than formerly. The most noticeable fact in this connection is that only a very small proportion of the cases with fractured skulls were able to go back to their former type of work.

In consideration of the physical health of these cases, we find that one-half of them have enjoyed good health since leaving the hospital; that the five who died were not in good health before their final illness; and that the others have been fairly well, but obliged to spend some time in general hospitals.

Four of the patients who were intemperate users of alcohol before their accidents continued in the same way after leaving the hospital. Three who were not heavy drinkers before became so afterwards, and one of the drug addicts continued the use of morphine.

The cases of traumatic epilepsy have had periodic convulsions since discharge.

The presence and absence of headache and dizziness as complaints are about evenly divided among the patients.

Concerning mental symptoms since discharge, it is to be noted that only a few still show abnormal findings, the majority being apparently quite sound mentally. One patient has a disturbance of language ability. Formerly he spoke both Polish and English,

but now he has lost completely the ability to speak his native tongue.

As to personality changes, about one-third show a marked increase in irritability, a few exhibit varying degrees of irresponsibility, and the rest have evidently regained their previous personality makeup.

Only five of the cases still show evidences of neurological sequelæ in paralyses, anosmia and other manifestations.

The factor of insurance settlement apparently plays very little, if any, part in the consideration of these cases.

A satisfactory social adjustment on the same level as before the accident has been made by over half of the cases. Seven of the patients have failed to adjust even fairly well and in the others the social adaptation is satisfactory, but on a lower level than formerly.

Summary.

I. This study brings out the rarity with which traumatic psychoses occur, as our series covered a period of 16 years and averaged only one-half of one per cent of first admissions to the hospital.

II. In comparison with the severity of the psychosis shown, the duration of stay in the hospital and subsequent adjustment, both social and economic, is better than might be expected, with the exception of the cases of post-traumatic mental deterioration, which usually require continued hospital care.

III. The factor of over-indulgence in alcohol has a definite relation both to the causation of the accident and to the adjustment of such patients after leaving the hospital. The adaptation is consistently on a lower level than in the cases in which alcohol is not used excessively.

IV. The occupational limitation of our patients to the classes of tradespeople and laborers may somewhat nullify the optimistic outlook as to social and economic readjustment, for naturally their rehabilitation is not on a high plane. The one case of a professional person showed that he was unable to resume his law practice and former social activities. It is very possible that head trauma may have a more disastrous effect on those who have formerly engaged in professions or more intellectual and specialized occupations than

on those whose economic life has been more one of routine and manual labor. The realization, however, that the greater part of our population is made up of tradespeople and laborers justifies the expectation that a reasonably satisfactory recovery from a traumatic psychosis will be made in the majority of cases.

V. The type of injury sustained seems to play an important part in the adjustment of the patient to his former surroundings. The cases of fracture of the skull are less apt to readjust socially than the ones with head injury without fracture and are markedly less able to resume their former occupations than the latter. This should be an important consideration in prognosis.

VI. The most common of the sequelæ of traumatic psychoses appear to be: continued irritability; headache; dizziness; and, to a lesser extent, irresponsibility, with impaired judgment. In the deteriorative forms, we find immaturity and disturbances of the intellectual faculties.

VII. While it is true that the traumatic psychoses, in proportion to the other psychoses, are relatively rare, much can be done for them in the nature of prevention by modern methods of treatment that have been so well set forth in the new literature on the subject.

VIII. It would seem that but a small proportion of head injuries develop psychoses. It is well-known, however, that they do not escape entirely from mental or nervous defects and that a huge number constantly develop the neuroses, which ordinarily remain as neuroses and do not develop into psychoses.

DISCUSSION.

Dr. Robert M. Ross.—One of the findings of Dr. Bonner and Dr. Taylor is that the incidence of traumatic psychoses is low, but it is an important one-half of one per cent. It will no doubt become increasingly so. Those of us who have been obliged to give expert opinion in courts of law, keenly feel the need of more definite findings. Although the group reported is limited to 50 cases, there is a considerable amount of valuable data given and I feel we owe the authors a vote of thanks for their painstaking work.

The social service follow-up data constitutes a distinct contribution and covers 60 per cent of the entire group.

There is much optimism as to prognosis in this report. In the period covered there were only nine deaths. Sixty per cent were found suitable for dis-

charge after a comparatively short hospitalization. Forty-six per cent of the group improved or recovered. One-third of those discharged, or 22 per cent of the whole, resumed their former occupation. One-half of those discharged, or 32 per cent of the whole, had good health at the time of the investigation.

Since there is an equal number with and without skull fracture, there is good opportunity for contrast. Although the number is not given, delirium was not confined to skull fracture cases. Skull fracture patients required longer hospitalization yet there were among them, those who were sufficiently improved to warrant discharge. It is noted as an outstanding feature that the fracture cases resumed work at a lower level. It would be interesting to know how many of the fracture cases exhibited convulsion.

The well-known viciousness of the combination of head injury with alcohol is emphasized. I would like to ask Dr. Bonner and Dr. Taylor whether alcoholic cases exhibited convulsion.

If the information is available, I would like to know the fate of the 24 per cent who exhibited prepsychotic personality defect.

Every paper that I have reviewed emphasizes the search made for neurological findings and evidence of demonstrable organic change. This is of course, highly important. In cases without fracture, with a minimum of neurological findings there have been advanced a host of theories to explain the changes noted. Dr. Israel Strauss in his recent excellent paper compiled an interesting list of them. It is always helpful to keep before us the ontology of the human brain. The mind is the product of an extremely delicate machine. There are present remnants of the primitive archipallium over which presides the much more specialized neopallium. This control is mainly in the nature of refinements of inhibition and correlation or association. In the humble lizard for example, there exists a type of sensorium; he recognizes where his food is to be found and orients himself with relation to it. He likewise has a store of memories and profits by experience to a limited extent. He exhibits reaction to emotions of fear, rage and so forth. There is even a beginning of judgment in his selection of prey and in timing his attack accurately. With the addition of the neopallium all of these primitive functions are vastly extended and refined. The primitive reactions in each sphere are inhibited and largely directed by the neopallium.

Every psychiatric worker is aware of the presence of these primitive reactions and is often surprised by their vigor. In time of crisis they assert their power, throwing off much of the higher inhibitory control. All of the refinements of the neopallium are of a more delicate nature. For their proper functioning they require nicety of timing and a vast amount of association. I wish to submit that on account of its delicacy and extreme complexity such a mechanism is easily thrown out of control. In any state of mental derangement we see confused fragments of the higher functions mingled with primitive instinctive outbursts freed from their usual inhibitions. It is so with concussion. There is marked emotional

disturbance associated with every head injury of major importance. I feel that this alone is sufficient cause to disrupt the delicate machinery of the mind, in condition of concussion, without demonstrable organic change.

When a concussion patient recovers consciousness and senses, even if vaguely, that he is out of control, this must cause excessive anxiety and terror. This state certainly further hinders resumption of normal control.

We are all familiar with the fact that stress of emotion alone is capable of disrupting the delicate associations concerned with the faculty of memory. In some instances this occurs before there has been time for cell damage due to vasomotor causation. It is frequently noted that these associations are restored following sleep and seem but little impaired. I, therefore, submit that these factors must be highly important, especially in cases without fracture with minimum neurological findings. This must have an important bearing on the good results noted in a large per cent of cases which for a time seem so seriously damaged.

This paper of Dr. Bonner and Dr. Taylor merits full discussion.

ANATOMIC CONSIDERATION IN CLINICAL INTERPRETATION OF BRAIN INJURIES.*

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The past decade has witnessed increasing interest in brain injuries, due amongst other reasons, to (1) the steadily rising incidence of automobile injuries and fatalities; (2) the litigation resulting from various accidents; (3) industrial compensation laws; (4) the reaction to the psychogenic theories that attempted to explain most of the neuropsychiatric disorders in the World War; and (5) the unusual progress made in this period by neuropsychiatry and its allied specialties, neurosurgery and neuropathology.

The literature has been enriched by fundamental contributions on various phases of brain injuries. However, an appreciation of basic anatomic factors is essential in the interpretation of the clinical manifestations, and in the institution of effective therapy.

My own interest in brain injuries was aroused in 1917, when I was in charge of the pathological department of the Manhattan State Hospital, at Ward's Island. I performed an autopsy on a patient who had been diagnosed clinically as suffering from "allied to dementia præcox," a diagnosis both respectable and quite acceptable at that time. On removing the brain, I noticed a peculiar discoloration and abrasion of the inferior surfaces of the frontal lobes. I showed the specimen to the late Dr. Dunlap who explained the significance of the findings, and called my attention to the frequent involvement of this portion of the frontal lobes in brain injuries and to the perplexing clinical picture that ensues.

The late war furnished material which, when carefully studied, offered considerable information of value in understanding the subject under discussion. I was privileged to observe many of these patients while in military service when assigned to the staff of Ward 55 of General Hospital No. 1, New York City.[1] Later, when the out-patient department of U. S. Veterans' Hospital No. 81 [2] was opened in August, 1922, I was able, for a period of seven years,

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

to study intensively a large number of patients who had sustained brain injuries in the war. For the past 12 years, I have performed all brain autopsies at the Jewish Hospital of Brooklyn, and a considerable number of brain injury cases were amongst them. My association with the Beth El and the Coney Island Hospitals, located on unusually congested arteries of traffic, has afforded me a most unique opportunity to examine a large number of acute brain injury cases. It is upon this experience that the following observations are made.

The brain is encased within the skull, is surrounded by the meninges, is intimately connected with the blood vessels that carry within their walls the lymphatic system of the brain (the Virchow-Robin lymph system), and is bathed by the cerebro-spinal fluid. The latter structures, developed for the purpose of affording great protection for the most specialized of all tissues, the brain, may become contributing factors in brain injuries under certain conditions in this highly industrialized civilization of ours, with its automobiles, tall buildings and firearms.

On examining the skull one is impressed with its anatomical peculiarities as a potential menace to the brain tissue. The upper surface of the orbital plates of the frontal bone contains numerous ridges which may be very sharp. The crista galli, while usually of small size, may at times be large and its edge extremely sharp. The lesser wings of the sphenoid are generally sharp, and beneath them are lodged the tips of the temporal lobes. Occasionally the inner tables of the parietal and the squamous portions of the temporal bones may contain sharp bony projections. The posterior fossa is generally free from any bony projections on its inner tables.

The dura is intimately adherent to the skull, forming its periosteum. Both in the very young and in the very old it is strongly attached to the bone. The falx cerebri divides the upper portions of the cranial compartment into two parts into which the hemispheres fit. The tentorium cerebelli divides the posterior fossa into two compartments. The incisura tentorii is intimately associated with the brain stem.

The arteries of the brain proper are more or less tortuous in their course and are able to withstand trauma. However, there are a few amongst those who have given considerable attention to

aneurysms of the cerebral vessels who claim that a blow on the head may indirectly be responsible in the formation of basilar aneuryms.[3] Nevertheless, rupture of a large vessel of the brain is indeed a rare finding at necropsy. The small vessels however, are intimately connected with the brain tissue and are frequently injured. The smaller arteries of the pons arise from the posterior and lateral surfaces of the basilar artery, and are frequently torn in brain trauma.[4-6] The dense glial membrane that separates the vessels from the brain tissue may be unusually thick in arteriosclerotic individuals, and it may tear the vessel wall from the brain tissue during an accident. The Virchow-Robin lymph space, connecting eventually with the pericellular lymph space, often ruptures at the time of the accident, causing disturbance in lymph circulation, and becoming in itself a factor in brain destruction.[7-12] The walls of the sinuses of the dura are strong and elastic, and they tolerate blows on the head very well. However, the petrosal sinuses may be contused or torn in fractures of the skull involving the petrous portions of the temporal bones. The sinuses act as a buffer between the trauma and the adjoining brain tissue. Many of the superior cerebral veins enter the superior longitudinal sinus at an oblique angle, and they are frequently contused or lacerated in brain injuries, and produce subdural and subarachnoid hematomas.

The cerebro-spinal fluid is lodged within the ventricles, the subarachnoid space and the perivascular spaces. It tends to transmit the force of a blow to distant parts of the brain. Moreover, cerebro-spinal fluid secretion is increased in brain trauma, and it causes pressure on the brain tissue,[13] with brain degeneration.

The meninges, the falx and the tentorium, the large vessels, and the cranial nerves, as well as the anatomical pecularities of the cranial fossæ, tend to limit the movement of the brain within its encasement. The frontal lobes are relatively free and so are the occipital lobes. The parietal and temporal lobes are more or less rigidly fixed within the skull. The brain stem likewise is more or less fixed by the meninges as well as by the cranial nerves.

The result of any blow on the head is naturally determined by the effect it has upon the brain. Other determining factors are the age of the patient, the force of the blow, the part of the brain injured, the presence or absence of fracture of the skull, the type

of fracture when present, the tearing of the meninges and subarachnoid bleeding. The escape of cerebro-spinal fluid is likewise a determining factor in the prognosis.

It is significant that blows on the head cause injury to those portions of the brain directly beneath and directly opposite the part of the skull struck. The frontal lobes, because of their relative freedom, and because they rest upon the orbital plates of the frontal bones, are very frequently injured (Fig. 1).* The force of the blow is transmitted to the frontal lobes, and they brush across the prominent bony ridges of the orbital surface of the frontal bones and sustain abrasion of their inferior surface. Occasionally, a prominent crista galli with a sharp edge, may lacerate one or both frontal lobes. Recently I took care of a man of 60 years, who while hanging curtains fell backwards striking his head. He was dazed, sat down to the table, drank a cup of tea and then gradually sank into coma. On examination he had rigidity of the neck, congested and edematous eyegrounds, bilateral Kernig, bilateral Babinski and bloody spinal fluid. His temperature rose to 102, his pulse was rapid, and he was in deep coma. A diagnosis of frontal lobe laceration was made. He died two days later, and at autopsy both frontal lobes were lacerated (Fig. 2), due to a prominent and unusually enlarged crista galli, striking against both lobes.

The occipital lobes are less free than are the frontal lobes, and the adjacent part of the skull hardly ever possesses any projections or sharp ridges. Moreover, the neighboring venous sinuses act as a buffer against blows directed on the skull. Therefore, the occipital lobes are infrequently injured. The anterior parts of the temporal lobes are very commonly injured because they are crushed against the sharp edge of the lesser wing of the sphenoid. The lateral surface of the temporal (Fig. 3) and parietal lobes are likewise frequently injured because these portions of the brain are rather rigidly fixed within the skull cavity, and the adjacent bone contains numerous ridges. The pons, because of its unique blood supply, its rather restricted motion, and its proximity to the incisura tentorii, is frequently the seat of injury. This is equally true of the medulla. The cerebellum, because of the smooth surface of the neighboring bone, and the buffer effect of the venous sinuses,

* Illustrations in this article are from the Department of Pathology of the Jewish Hospital of Brooklyn.

is rarely injured, except when there is a basilar fracture involving the petrous portion of the temporal bone; and in these instances, it is the cephalic surface of the cerebellum that is injured.

The first response of the brain to any acute insult of whatever nature is with extensive generalized edema. This causes increased intracranial pressure, with embarrassment of the medullary centers, and shock.

Sudden displacement of the cerebro-spinal fluid in the perivascular spaces causes considerable injury to the brain tissue and elicits marked edema. The escape of blood into the subarachnoid space is in itself responsible for considerable edema and degeneration of the brain cortex.[14] Edema itself causes brain compression of the Virchow-Robin lymph spaces, and interferes with the proper functioning of that particular drainage system.

Tearing of the brain as well as the accumulation of blood within it, elicits both mesodermic and ectodermic reactions.[15-17] Animal experimentation has established the precise mechanisms of this reaction. In the first week there is marked activity of the microglia which tends to remove all products of degeneration and destruction to the adjacent perivascular spaces and even to the vessel walls. Subsequently the macroglia appear on the scene, produce glial fibers, and the healing process is on the way. A glial scar is the end result. At least one month is necessary for this macroglial reaction to cease. The mesodermic reaction is characterized by the formation of a connective tissue scar which frequently intermingles with the glial scar.[18-20] This cicatrix tends to contract and pulls upon the adjacent brain tissue, causes irritation, and is responsible for a considerable number of the symptoms following brain injuries including the convulsive seizures. The convulsions appear generally months and even years after the initial brain injury. The scar formation tends to cause meningo-cerebral adhesions and subarachnoid fluid collections, and interferes with the proper cerebro-spinal fluid circulation and absorption. It frequently causes displacement of the ventricular system.

At necropsy the following types of brains are encountered:

1. A heavy and soggy brain, of brown or dark red appearance, exuding blood tinged fluid (Fig. 4). This type of lesion shows, clinically, nuchal rigidity, hypertonicity of the lower extremities, and bilateral Babinski, and marked delirium and excitement. The

spinal fluid may be clear or blood tinged. The brown or red appearance is due to extensive subpial hemorrhage.

2. A heavy and edematous brain, showing extensive contusions and lacerations. This type is accompanied by subarachnoid hemorrhage and by focal neurological signs such as hemiplegia and cranial nerve involvement, and by marked stupor.

3. A heavy and edematous brain showing no lacerations or contusions macroscopically, but microscopically it presents numerous punctate perivascular hemorrhagic areas, especially in the brain stem, frontal lobes, and corpus striatum (Fig. 5). It is this type which clinically shows the syndrome of cerebral concussion (Fig. 6).

4. A heavy, edematous, and blood discolored brain with laceration and contusions, and associated with subdural hematoma.

5. A heavy and edematous brain, presenting very little if any pial discoloration, and no contusions or lacerations, but accompanied by subdural blood clots.

All of these types may occur with or without fracture of the skull.

The signs and symptoms of acute brain injury will depend upon many factors,[21-23] the most important of which being the degree of disturbance in consciousness, the part of the brain injured, the presence of focal localizing signs, subarachnoid bleeding, the extent of cerebral laceration, the presence and the type of accompanying skull fracture, and the escape of spinal fluid.

The results of the treatment of acute brain injuries will depend upon the appreciation of the underlying anatomical and pathological changes, and the experience of the physician who manages the patient. Serious brain injuries are generally accompanied by shock. This must be given first consideration in the treatment of the patient. When in shock, the extremities are cold and clammy, disturbance of consciousness is marked, the pulse may be rapid or slow, and the respirations irregular and shallow. The patient should be kept in the Trendelenburg position. Heat, in whatever form, should be applied to the body and especially to the extremities. Cardiac stimulants, such as caffein, digitalis, and camphor must be administered. Normal saline, or a 5 per cent glucose solution, should be given intravenously or by hypodermoclysis. The patient should be disturbed as little as possible. All efforts should

be directed to combat the initial shock. After the initial shock has been successfully met, a thorough neurological examination by a competent neurologist should be made. A spinal puncture should be done by a trained physician. The initial lumbar puncture, carefully done, is extremely important in establishing the presence or absence of subarachnoid bleeding, and in determining intracranial pressure. It must be remembered that spinal manometric pressure reading is not always a true index of intracranial pressure, for a very edematous brain will block the cerebral subarachnoid space, and the cerebro-spinal fluid will be prevented from reaching with full force the spinal subarachnoid space and the spinal manometer. Therefore, a spinal manometric reading after the cerebral edema has been somewhat diminished by the intravenous administration of hypertonic glucose or saline solutions, will give a more accurate estimation of intracranial pressure. Occasionally the condition of the optic discs may prove a more accurate index of the extent of intracranial pressure than the spinal manometric reading. Furthermore, spinal puncture in brain injuries that are accompanied by subarachnoid bleeding, is of tremendous therapeutic value. The withdrawal of the bloody spinal fluid minimizes the harmful effects on the brain that result from the presence of blood in the subarachnoid space, relieves intractible headache, and relieves intracranial pressure. Cerebral edema must be combatted with hypertonic glucose and hypertonic saline, and with lumbar puncture. Increased intracranial pressure causes increased venous pressure and increases cerebral bleeding. The old theory that reducing intracranial pressure will cause increased bleeding is no longer considered as valid. Subtemporal decompression for the relief of intracranial pressure in brain injuries, as advocated by some eminent neurosurgeons,[24] is not recommended. It does not relieve generalized edema, and in a few brains that I have examined, the decompression resulted in small herniation, and in the formation of a definite circular depression in the brain tissue adjacent to the decompression ring of the skull.

Excitement should be combatted with sodium luminal and sodium amytal administered intravenously. While it is universally agreed that morphine must be avoided in the treatment of brain injury cases, I have encountered several such patients in whom this drug alone checked their excitement and unquestionably helped to save

their lives. Careful frequent observations of the blood pressure, pulse, respiration and temperature, as well as the analysis of the type and extent of disturbance of consciousness, will enable the trained observer to institute the most effective therapy. After shock has been successfully combatted, the head of the bed should be elevated to 45 degrees, as this aids proper intracranial hydrodynamics, and lowers intracranial pressure.

It must be remembered that the early signs and symptoms of cerebral injury may be most alarming, and yet they need not be interpreted as indicating a fatal outcome. In fact many patients who are admitted to the hospital in deep coma, with definite neurological signs and evidence of markedly increased intracranial pressure, and even with subarachnoid bleeding, recover, and show no objective neurological signs when they are discharged. This is illustrated by the following case:

A young woman of 30 (No. 70340) was admitted to the Beth El Hospital April 14, 1935. She had fallen down a flight of stairs leading to the cellar. She was found in an unconscious state and was immediately brought to the hospital. On admission she was in deep coma; was bleeding from the nose and mouth; there was a hematoma of the right eye; and there were lacerations of the face and chin. There was flaccid paralysis of all extremities. She showed a bilateral Babinski; left knee jerk and left ankle jerk were a little more active than the right. The pulse was 56, temperature was 98, and blood pressure was 100/60. The left pupil reacted to light, and the right was fixed. The eyegrounds showed marked vascular engorgement. She was in shock, and measures were instituted to combat it. She remained in deep coma for 24 hours. The temperature rose to 104, the pulse to 114, and the respirations were shallow and rapid. Bilateral Babinski persisted. The right pupil still remained fixed, and the spinal fluid was bloody. She was given hypertonic glucose solution and spinal drainage. On the third day she became restless and tossed about, but was still unconscious. On the fourth day she gradually began to come out of the coma, but she was still uncooperative and resisted examination. One week after admission to the hospital she showed unequal pupils, the left larger than the right, and both reacted sluggishly. The eyegrounds showed vascular engorgement and there was edema in the left disc. Spinal fluid puncture was bloody and bilateral Babinski was present. Mentally the patient was readily aroused, but appeared dazed and bewildered, and did not respond to questions. The following week her condition gradually improved and she was discharged April 28 at the request of the family. At the time of her discharge from the hospital there were no demonstrable neurological signs. Nevertheless, she was still in a somewhat dazed condition, answered questions intelligently but slowly, and showed difficulty in perception and in association. She had a definite amnesia and

complained of headache. This patient, though in a critical condition on admission, showed marked improvement, and at the end of two weeks of hospital residence all neurological signs had disappeared.

In observing acute brain injury patients, one is often impressed with the marked improvement in the patient and the change of symptoms that occur in a week or 10 days after admission to the hospital. Nevertheless, these patients should be kept in bed for at least three weeks to a month to allow the process of repair to occur.

The relationship of fracture of the skull to brain injuries and its bearing on therapeutic measures are now well understood by those who have had experience in treating such patients. A fracture of the vault, particularly in children, may be in itself a rather salutary condition, for it enables the swollen and edematous brain to expand. Time and again we have seen children brought into wards and presenting the identical chain of symptoms; those who have sustained a fracture of the vault often cleared up much sooner than those who did not. Fractures of the base of the skull are frequently accompanied by laceration of the dura and arachnoid, subarachnoid hemorrhage, escape of cerebro-spinal fluid and cranial nerve lesions. It is in these types of fractures that the dreaded complication of meningitis occurs. Therefore, basilar fractures carry a grave prognosis. In the vast majority of cases it is advisable to postpone X-ray of the skull until the patient is well on the road to recovery, for moving the patient while in shock or in deep coma, and subjecting him to various manipulations necessary to take proper X-ray plates, is in itself harmful. Furthermore, in the vast majority of cases nothing is really gained from this procedure. Comminuted fractures of the skull do require surgical interference, and this may be instituted several days or even weeks after the initial injury. Nevertheless, there are certain types of patients in whom X-ray examination is imperative and surgical measures must be instituted as soon as the patient has recovered from shock. A trauma of sufficient degree to cause a fracture of the skull will also produce structural alterations in the brain even in the absence of demonstrable neurological signs. As a general rule it may be said that the management of brain injuries is a neurological and not a surgical problem.

Of course, the subject of acute subdural hematoma [25] is one which is now better understood and more frequently diagnosed.

The initial loss of consciousness followed by period of possible lucidity with subsequent increasing coma, or more commonly alterations in the depth and extent of the subsequent coma, associated with focal neurological signs, and particularly when accompanied by bloody spinal fluid and dilated and fixed pupil on one side, should lead one to the diagnosis of acute subdural hematoma. Its early recognition and immediate institution of surgical measures will save many a life.

The subject of cerebral concussion [12] is one that has caused considerable discussion and disagreement both as to the definition of the term and the conception of the underlying anatomical changes. It has also been the source of annoyance as well as confusion in medico-legal situations. The term should be employed to include those groups of cases in which a definite brain injury in the nature of multiple punctate cerebral hemorrhages, generally perivascular in their distribution, has occurred. Loss of consciousness at the time of the accident is not a necessary criterion of brain injury in this group of cases. I have repeatedly seen patients who had met with an accident, and had died from such causes as injuries to the thoracic or abdominal viscera, and who at necropsy showed numerous punctate hemorrhages particularly in the brain stem and especially in the medulla. Occasionally one meets patients who have had a definite blow on the head without even momentary loss of consciousness and yet immediately develop excruciating headache, bloody spinal fluid and neurological signs. The following case is illustrative of this condition:

A young married female of 27, while crossing the street, April 26, 1935, at 10 p. m., was struck by a fast moving automobile. She was not rendered unconscious, and walked home a distance of one block. She vomited, complained of headache, and had bleeding from the nose. A physician was summoned who advised absolute rest in bed. At midnight, her headache became unbearable and it was localized over the entire skull, but most intense in the frontal region. The pain was sharp, almost knife-like in character, steady and continuous. She also had pain in both eyeballs, and she could not open her eyes. She remained in bed for two days. I examined her on April 29, and at that time she had moderate resistance of the head to flexion, and a mild Kernig, more on the left. The left pupil was larger than the right. The right pupil reacted very poorly to light, and the right eyeground showed haziness of the nasal half of the disc. There was drooping of the right angle of the mouth. There was an exhaustible nystagmus on looking to the left. The deep reflexes were present and the abdominals were

intact. There was spontaneous extension of the right big toe. Spinal puncture resulted in a lightly bloody fluid of uniform color when collected in several test tubes, and was under 260 mm. water pressure. A diagnosis of traumatic subarachnoid hemorrhage with cerebral concussion was made, and she was sent to the Beth El Hospital (No. 70610). The blood count showed 12000 W. B. C., with 82 per cent polys. Her blood chemistry was normal, and her urine was negative. The pulse for the first two days after admission varied between 50 and 60. The temperature was 101 and respirations were 24. The inequality of the pupils, the haziness of the right eyeground, the drooping of the right angle of the mouth, the nystagmus and the extension of the right big toe persisted for five days. Repeated spinal punctures relieved the excruciating headache. The bloody spinal fluid finally cleared. X-ray of the skull showed an oblique fracture through the frontal bone on the right side extending 1½ inches from the middle above the orbit upwards and backwards for a distance of ¾ of an inch. On May 9, she was discharged from the hospital practically symptomless.

This case illustrates very well the point in question, namely that unconsciousness is not an indispensable sign in cerebral concussion cases. It must be remembered that many patients show disturbance in, rather than loss of, consciousness, and the determination of the degree and extent of this disturbance of consciousness is a matter which the trained neuropsychiatrist can best evaluate. I have observed many patients who showed uncontrollable excitement rather than coma following acute brain injuries.

It is a matter of common knowledge that age has a definite bearing upon the prognosis in brain injury cases. While children stand it fairly well, old people do not tolerate it, and generally die as a result of it. It must be remembered that even in children the injured brain is an impaired organ that carries with it unfavorable consequences.

Brain injuries are invariably followed by a train of symptoms [26-27] including headaches, dizzy spells, undue fatigability, lack of concentration, impulsiveness, irritability, periods of indifference, moody spells, loss of ambition and impairment in efficiency. Fainting spells and even convulsions may ensue. In many of these patients neurological signs may be detected on thorough examination. These symptoms are caused by glial and connective tissue scars that replace the destroyed hemorrhagic brain areas, by the contraction of the scars and their irritation of the brain tissue, by subpial and subarachnoid collections of fluid, by meningocerebral adhesions, by inadequate Virchow-Robin lymphatic system drainage, and by distortions of the ventricular system.

Frequently, these patients will show no neurological signs when examined a few months after the accident. Spinal fluid [28] and encephalographic [29] studies will prove very helpful. The encephalogram may prove indispensable in appraising the anatomical alterations caused by the injury. In many cases the encephalogram may disclose meningo-cerebral adhesions as well as variations in the size and shape and position of the ventricular horns. It may disclose extensive or localized cerebral atrophy or subdural hematoma. It must be remembered that the X-ray study of the skull and its intracranial contents, including encephalographic interpretations, has become a specialty in itself.

There is still a large group of cases of brain injury, especially of the type of cerebral concussion, that may not show neurological signs or even changes in the encephalogram. It is in this particular group of patients that much may be learned from studying the records of findings when the patients were admitted to the hospitals immediately after the accidents. It is a regrettable but a true fact that very few general hospitals, where most of the acute brain injury patients are treated, have adequate neurological examinations made on these patients. It would prove of inestimable value to patients, physicians and even to juries, if a proper neurological examination was made on every patient who had sustained an injury to the head.

Brain abscess and traumatic Parkinsonian syndrome [30] may be delayed complications of brain injury. Post encephalitic Parkinsonian states,[31] and the different clinical types of neurosyphilis may be precipitated by these injuries.

The clinical pictures of acute psychotic reactions [32] complicating brain injuries are quite familiar to the average psychiatrist. The majority of these patients have received abrasions and lacerations to the orbital surface of the frontal lobes, and multiple hemorrhages and edema and degeneration in the association pathways. That brain injuries may precipitate (not cause) clinical paresis, dementia præcox or an attack of manic-depressive psychosis, is acknowledged by most psychiatrists.

The most perplexing and the most annoying of the after effects of brain injuries are the various manifestations of behavior disorders which many patients show after they have recovered [33-35] from the acute stages of the injury. There are so many conflicting

opinions expressed even by competent observers,[37] that they have become a subject matter for the cynic. I know of no other field in medicine in which so many contrary views are held by equally eminent physicians. In part, this is due to the difference in training and in experience of the various observers. A thorough training in neuroanatomy, neuropathology, clinical neurology, psychiatry and psychoanalysis is an indispensable prerequisite for the adequate appreciation of the basic principles, anatomic as well as psychological, that underlie the behavior disorders of the large groups of the post-traumatic neurotic patients. It is the neuropsychiatrist and not the superspecialist [36] in neuropsychiatry who is best qualified to pass opinion on these patients.

In general these patients fall into four groups:

1. Post-traumatic constitution.
2. Traumatic neurosis.
3. Traumatic hysteria.
4. Malingering.

The term "post-traumatic constitution" should be limited to the groups of patients who show neurological signs or encephalographic changes and who have headaches, dizziness, fainting spells and even convulsions. They show mood fluctuations, from apathy and indifference on the one hand to irritability and impulsiveness on the other. They lack concentration, and show marked impairment in efficiency.

"Traumatic neurosis" should be applied to those individuals who have recovered from a brain injury, and who do not show any neurological manifestations, or changes in the encephalogram, and yet they show definite changes in their personality. Prior to the accident they were pleasant and agreeable, self-supporting, and of normal biological reactions in every way. Following the accident they have become irritable, given to brooding, are restless, easily excitable, cannot maintain any sustained effort, complain of dizziness, especially when changing their posture, cannot work for any length of time, are readily fatigued, are apt to become quarrelsome, are emotionally unstable and show a worried expression. This symptomatology frequently follows the cerebral concussion type of brain injury.

The term "traumatic hysteria" should be limited to the neurotic reaction in certain people who have been in an accident, but who

have sustained either no injury or an insignificant scratch or abrasion. The trauma to which they attribute their complaints was usually an insignificant one. A careful anamnesis will usually elicit evidence of a neurotic personality, whose ego inflated its injured narcissism by blaming a trivial accident for their maladjustment in life. This group resembles the "compensation neurotics," who crowded the clinics of the Veterans' Bureau. Bad management on the part of their physician and their legal advisers, tended to fixate their symptoms. The trained neuropsychiatrist should have no difficulty in recognizing this group.

Malingering, or conscious falsification of the truth for a purposeful gain, utilizing illness as a means of obtaining monetary gain, is a subject which is known to others besides medical men. Many a physician has been fooled by the complaints of the malingerers especially when they were accompanied by corroborative evidence from their legal advisers.

Summary and Conclusions.

1. The orbital plates of the frontal bones, the lesser wings of the sphenoid, and the restricted motion of the brain within its encasement are indirect contributing causes to brain injuries.

2. Cerebral and subarachnoid hemorrhage, cerebral edema, and disorganization of the Virchow-Robin lymph system, contribute to brain destruction and degeneration.

3. Post-traumatic sequellæ are due to loss of brain tissue, meningo-cortical adhesions, contraction of scars, collections of fluid in the meninges, and interference with proper cerebro-spinal fluid and lymphatic circulation.

4. Significant brain injuries may occur without loss of consciousness.

5. Conduct disorders following brain injuries are differentiated from psychogenic behavior disorders.

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FIG. 1.—Common Site of Frontal Lobe Injury.



FIG. 2.—Laceration of Frontal Lobes by Prominent Crista Galli.

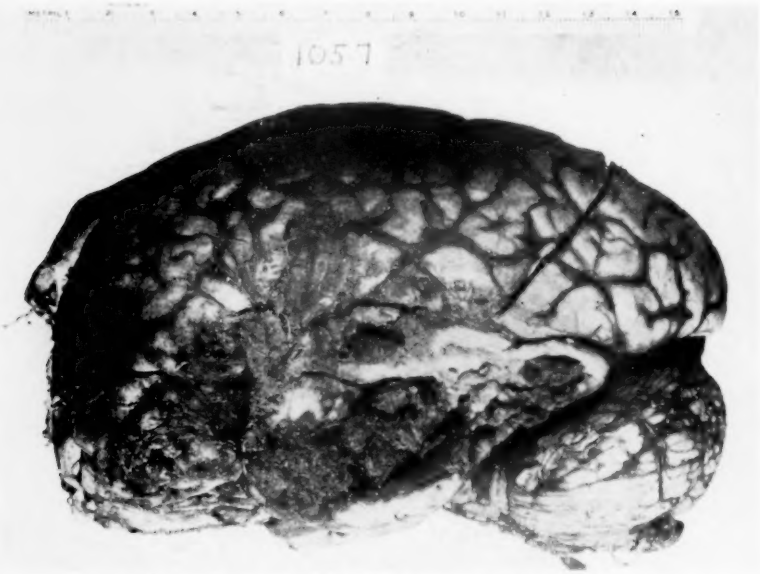


FIG. 3.—Common Site of Temporal Lobe Injury.



FIG. 4.—Extensive Traumatic Subpial Hemorrhage.



FIG. 5.—Multiple Punctate Traumatic Cerebral Hemorrhage.



FIG. 6.—Punctate Hemorrhage in the Striatum.

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DISCUSSION.

Dr. Clarence A. Bonner (Hathorne, Mass.).—I think the subject of traumatic psychoses is a fascinating one, particularly as Dr. Ross has mentioned in court work. My interest was particularly aroused because I found that the facts were different from the traditional understanding that I had of the traumatic psychoses, namely severe head injury resulting in a psychosis gave forth a very poor prognosis. This is hardly true according to facts and figures, even in the small group that we have studied.

Dr. Ross asks this question in relation to the persons who are addicted to alcohol: Did they suffer from convulsions? My best knowledge is that they were not in the group that had convulsive seizures.

As to the pre-psychotic personalities, in twelve of these cases, as I remember, we find that there was some personality deviation, depending upon the outlook of the examiner, that there were seclusive tendencies and some irritability in the normal life. I am unable to trace these twelve cases through to the time when they had their psychosis and I cannot say whether or not they were exaggerated.

DR LEROY M. A. MAEDER (Philadelphia, Pa.).—Dr. Sands has given a quite opportune paper in view of the increasing incidence of cerebral trauma as a result of accidents with automotive vehicles. He has emphasized the point that the first response to any acute insult to the brain is a generalized edema which causes increased intracranial pressure and which results in an embarrassment to the medullary centers and also interferes seriously with the nutrition of the brain substance.

The volume relationship between the blood and the brain, the brain substance and the cerebrospinal fluid, of course, is a thing which we have to bear clearly in mind. The volume of the blood within the arteries, the capillary bed and the veins must be maintained if cellular activity is to continue, because with the presence of pressure and the disturbance of this volume relationship, we have increased embarrassment of the medullary centers and also beginning degeneration of the brain tissue.

The proper volume relationships between brain, blood volume and cerebrospinal fluid and interstitial fluid volume therefore must be maintained at all events. In dealing with the volume relationships, we have our best indication of it in the intracranial pressure which is an index of the opposing forces of the component volumes. Therefore, an adequate treatment must have as its basis the principle of reestablishment of normal volume relationships, which means an adequate circulatory return to the injured part to maintain the cells that are still viable and to promote healing and the return of functional activity.

The conviction prevails, and I would say is becoming more prevalent, that cerebral decompression is justified in acute cerebral injury only as a matter of last resort. Physiological measures and methods of decompression are coming more and more in favor. Of course, this does not mean, where there is pressure of bone upon the brain substance, or dirt and hair in the brain substance, that surgical intervention should be postponed. But cases which show signs of subarachnoid hemorrhage, that is bloody spinal fluid, should be spared any surgical intervention as long as possible. The palliative measures should be directed toward the relief of the intracranial pressure. What measures should be taken will be indicated by a careful early record of the temperature, pulse, respiration, blood pressure, pulse pressure and the spinal fluid pressure, which makes possible the analysis and regulation of the intracranial pressure and particularly of the volume replacements.

The early administration of proper therapeutic procedures is, as Dr. Sands has emphasized, in cases of severe injury to the brain, not only necessary to insure a better chance of survival by relief of embarrassment of the medullary centers, but also in large measure determines the resultant mental rehabilitation and protection against disability.

CHAIRMAN CHENEY.—There is one point that I have in mind concerning the apparent frequency of traumatic psychoses as determined by the percentages of admissions to mental hospitals. The New York State rate of

admissions to mental hospitals of traumatic psychoses, as I recall it, corresponds to that shown by Dr. Bonner, about one-half of one per cent, but that does not indicate as I see it the actual incidence of traumatic mental conditions because the admission of such a patient to a hospital for mental disorders depends upon a good many things.

Dr. Sands has indicated from his material that the general hospitals receive a good many such traumatic cases, and I presume take care of them to the point of recovery, because those hospitals are equipped to do that, whereas only the cases would be admitted to the mental hospitals that the general hospitals were unable to care for, or where there were no general hospitals available. I imagine that in the general hospitals there are a good many cases of traumatic delirium, which, if admitted to state hospitals, would increase the apparent frequency of traumatic psychoses, and influence also the figures of recovery.

Dr. Bonner's conclusion from his cases is that apparently fracture of the skull does not give as good a prognosis, and that is somewhat different from the experience of others. Various things have to be considered in connection with that. One may assume, as Dr. Sands has indicated, that if the blow is severe enough to cause a fracture of the skull, it may very well have been severe enough to cause actual brain damage. On the other hand, there is certain evidence to indicate that in some cases at least the fracture of the skull may be a source of relief to the patient by affording the possibility of a decreased intracranial pressure, so that the patient who has a fracture of the skull may be better off as regards intracranial pressure than if he had not had the fracture of the skull.

I think we have to consider that an apparently trivial head injury, without even loss of consciousness, may result eventually in very serious mental and nervous handicaps and that one cannot tell what the future holds, and cannot by any means make a prognosis entirely upon the severity or apparent severity of the head injury at the time it occurred. I think we have all seen cases who had apparently trivial symptoms, apparently trivial blows, go on and eventually develop a chronic disabled condition in which apparently a neurosis was not the predominating factor.

The question of the recovery of patients with so-called post-traumatic constitutional personality is a point that I personally should like to have decided. I do not recall, or had not recalled until recently, such recoveries, but very recently there came back to the clinic a patient who several years ago had had what seemed to me to have all the symptoms of a rather severe post-traumatic constitution. He had been quite disabled. But he came back to us recently, apparently well, and told the story that he had rather quickly recovered when his wife died. If I had had to testify in that case, I should have said he had a very poor prognosis and that his symptoms were due to the injury. So the more I see of traumatic cases—and I don't see by any means as many as Dr. Sands—the less I am inclined to feel able to express a definite opinion as to what the outcome is going to be in any head injury case.

Dr. Andrew L. Skoog (Kansas City, Mo.).—On account of the lateness of the hour I want to be brief, but these two papers that have just been presented on injuries to the brain (I say to the brain rather than the skull because I think that is all important), are meritorious of a full discussion. Now I am fully in accord with the importance of these decompressive measures without a major operation, such as giving the hypertonic solutions and repeated lumbar punctures. I could cite a number of cases, some of our own, where without any doubt repeated lumbar punctures restored the patients, and without any sequelæ.

Recently I saw a picture in a case of which I had taken an x-ray of the skull again, in which nine years later the boy was perfectly well and getting along fine in school, now in high school.

Then some years ago I had a man sent to me from a distant town. The family physician sent him in because of headache. He thought he was really malingering. After checking up on the patient and going into the history carefully, and it was only on the second check-up on the history, I discovered the patient had had a trauma to the head. He had bumped the top of his head on a rafter in his barn on the farm. He had paid no attention to it until a week later when a developing headache appeared. Now an x-ray three or four weeks after the trauma still revealed a small linear fracture somewhat near the base of the skull. This patient recovered completely after several repeated lumbar punctures. His symptoms were chiefly headache and an impairment of his behavior.

Dr. Irving J. Sands (Brooklyn, N. Y.).—It has been my experience that fractures of the vault, when accompanying brain injuries in children, are in themselves salutary things as they aid in relieving intracranial pressure. I have followed many children with brain injuries, and those who had sustained fractures of the vault got well sooner and left the hospital much earlier than those who had not. It is understood that the fracture of the vault was not of the comminuted or depressed types. Fractures of the base of the skull, in children as in adults, add to the gravity of the prognosis because of the cranial nerve lesions and of the possible meningitis.

There is one point that I cannot emphasize too strongly, and that is the need for more adequate records of the patients' condition when they are first admitted to a hospital after an accident. It is a fact that in most of the general hospitals the notes are made by the resident surgeon who is often either too busy or in no position to appraise the damage done to the brain, and examinations by a competent neurologist are not made very soon after the accident has occurred. If better records of the neurological status of the patient could be made, they would prove of inestimable value to the patient, the physician and all others who may become involved in subsequent litigations.

STUDIES IN THE DYNAMICS OF THE HUMAN CRANIO-VERTEBRAL CAVITY.*

By JULIUS LOMAN, M. D., and ABRAHAM MYERSON, M. D.

With the aid of new and improved technical procedures, great impetus has been given to the study of the dynamic conditions occurring within the cranio-vertebral cavity. These techniques include (1) microphotography of the pial vessels, a method perfected by Forbes [1]; (2) the thermoelectric blood flow technique devised by Gibbs [2]; and (3) punctures of the internal jugular vein and carotid artery introduced by Myerson and his co-workers.[3]

By the first method a great deal of information regarding the rôle of the cerebral vasomotor system has been obtained from animal experimentation by Forbes, Wolff, Cobb, Lennox, Finesinger, Fremont-Smith [4] and others. The blood flow recorder has been shown to have definite value in studies on the cerebral circulation both in animal and man. In man the technique briefly consists in inserting into a needle, which is within the internal jugular vein, a stylet containing an electrically heated tip and a thermojunction in series with a galvanometer. The tip of the stylet projects into the blood stream and is heated to a temperature slightly above that of the blood. If the blood flow increases as it passes the tip, the latter is cooled, and, if it diminishes, the tip heats up. The temperature of the tip is measured by means of the thermojunction. This method does not give absolute figures but gives the direction and general magnitude of the alterations in the speed of the cerebral blood flow. Since the internal jugular vein at the point punctured is relatively fixed in diameter, the changes in flow measured by the recorder probably indicate actual changes in volume flow as well as in velocity of flow. The technique of puncture of the internal jugular vein and carotid artery have been described elsewhere.[3]

In this paper we are concerned mainly with the experimental data obtained by the above cited puncture and blood flow technique

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under the conditions of postural alterations and the administration of drugs. Although a great number of the facts derived from animal experimentation on cranio-vertebral hydrodynamics may apply to man, some of these observations are not applicable to human problems and particularly for the following two reasons: (1) Because of the difference in postural habits between man and the lower mammalians, it is probable that the vascular readjustments are quantitatively and qualitatively dissimilar. (2) Most of the results obtained in animals have been derived under the conditions of anesthesia and particularly that produced by ether, a drug which in itself creates marked changes in cerebral circulation.

In the human experiments to be cited later, only a local anesthetic was used. The patients were selected from the Boston State Hospital and represent cases of dementia præcox, general paresis, arteriosclerosis, and senility. In these no gross clinical changes in circulation or in cranio-vertebral conditions were present.

General Physiology and Physics of the Cranio-Vertebral Cavity.

The physics of the cranio-vertebral cavity is unique. Although the brain and cord are invested in a rigid encasement of bone, it should be stressed that the conditions within the cavity only approximate a closed box system. This becomes immediately apparent when one considers the fact that the blood and cerobrospinal fluid which leave the cranial and vertebral cavities have many exits which communicate with the spaces outside these cavities. As a result, pressure conditions on one side of the barrier may be easily reflected to the other side. Particularly is this true as regards changes occurring in the thin-walled, elastic, cerebrospinal veins.

Enclosed within the cranio-vertebral cavity are the practically incompressible brain and cord invested by the thick outer dura and thin inner pia-arachnoid. Since these membranes are inelastic, they can play but an insignificant rôle in the maintenance of, or alterations in, the cerebrospinal fluid pressure. While there is little potential intra-dural space within the cranial cavity, the spinal cord, on the other hand, is surrounded by a loosely applied dura so that the spinal canal is relatively capacious as compared with the volume of its contents. Thus, under many conditions the spinal subarachnoid space may act as an emergency reservoir when cerebro-

spinal fluid is expressed from the cranial subarachnoid spaces. This is mainly made possible by the presence of the many thin-walled, easily compressible spinal veins.

The larger cerebral arteries derived from the carotids and vertebrals traverse the subarachnoid space, divide and sub-divide, and finally pierce the pia mater. As they pierce this delicate membrane, they carry with them thin invaginations of the pia, so that the subarachnoid space probably follows the arteries down to their fine ramifications in the form of the perivascular spaces. Thus, the brain may be regarded as a kind of sponge through which the cerebrospinal fluid penetrates in a microscopic stream. Once they enter the cranial cavity, the arteries largely lose their pulsations. This phenomenon has been pointed out by many workers and most recently corroborated by the skull window technique perfected by Forbes.[1] When a piece of bone is removed from the skull under normal intracranial conditions, the brain is seen to pulsate. Indirectly the almost complete lack of pulsatility of the cerebral arteries in their intact environment is indicated by the fact that although the average arterial pulse pressure is about 40 mm. of mercury, the cerebrospinal fluid pressure fluctuates only 2-4 mm. of water. Under such conditions, the brain is subject to a minimum of shock. It is only when the arterial pressure undergoes sudden and marked alterations that the cerebrospinal fluid pressure becomes altered. As the arteries spread out into the capillary bed, the pressure gradually diminishes. As low as the pressure is in the arterial capillaries, however, it must be higher than in the surrounding cerebrospinal fluid, otherwise their walls would collapse.

The larger cerebral veins, like their fellow arteries, traverse the subarachnoid space where they are in intimate contact with the cerebrospinal fluid, empty into the cranial sinuses, and thence directly or indirectly leave the skull by way of the internal jugular vein. The intracranial venous system has several peculiarities which play an important rôle in the dynamic economy of the brain: Whereas the veins elsewhere in the body are assisted by mechanisms which facilitate the onward flow of blood, the cerebral sinuses are characterized by the following features: (1) They lack valves. (2) They lack the supporting action of muscles. (3) They empty into the cranial sinuses against the direction of the flow of blood.

(4) The course of the sinuses is irregular with many twists, turns, and angles. Because of these characteristics a smooth onward flow is maintained and so the brain is protected against sudden changes in pressure that might otherwise be occasioned by sudden alterations in posture. Although the bulk of venous blood finds its way directly into the internal jugular vein, it is important to keep in mind that a certain amount of blood is returned by way of the emissary veins. When, for one reason or another, there is obstruction to the main cerebral venous pathways, these emissary veins increase in function, acting as safety valves. Indeed at times they may take over the entire drainage of the brain, as when ligation of both internal jugular veins is found necessary.[5]

The cerebrospinal fluid lies not only in intimate relationship to the vessels in the subarachnoid space and ventricular reservoirs but also penetrates the perineural spaces surrounding the cranial nerves, ganglion cells, the subarachnoid space surrounding the olfactory nerve and bulb, as far as the cribriform plate, and also surrounds the inner ear. In the spinal cord the fluid extends for a short distance along the anterior and posterior roots of the spinal nerves. The cerebrospinal fluid system in contrast with the arterial system cannot be considered to have a true circulation. Its movements and changes in pressure depend upon gravitation, changes in pressure of the surrounding veins, changes in caliber of the arteries, and only under unusual conditions upon variations in osmotic pressure.

In considering the reciprocal relationship of the venous and cerebrospinal fluid pressure, it should be stressed that it is the thin-walled cerebral veins which are important and not the cranial sinuses. Since these latter channels are enclosed in thick dural membranes, they can exert but little influence upon the cerebrospinal fluid pressure, nor can they in turn be influenced by the latter pressure. Thus, measurement of the venous pressure in any sinus reveals inadequate information regarding the exact venous conditions within the brain for the pressure in the sinus is extradural and, in a sense, extra-cranial. In contrast to this, the cerebral veins having walls which are compressible and distensible can readily communicate their pressure to the cerebrospinal fluid and, furthermore, the cerebrospinal fluid pressure can readily be communicated to the veins, so that the two pressures tend to stand

in equilibrium. Probably the closest approach to the conditions obtaining in the cerebral veins is by measurement of the pressure of the veins in the back of the eyeball, since these vessels are merely extensions of, and similarly enclosed as, the cerebral veins. Gibbs [6] has shown that there is a reciprocal relationship between the cerebrospinal fluid pressure and the pressure in these veins. Thus, the ocular venous pressures may be seen to follow directly the changes in cerebrospinal fluid pressure in a 1 to 1 relationship; whereas such a phenomenon is not observed when the pressure in the torcula or internal jugular vein is used as a criterion of the cerebral venous pressure.

The spinal intra-dural veins communicate with the extra-dural veins which, in turn, communicate with the body vessels, so that any variation in pressure on one side of the barrier is readily reflected to the other side and, as a result, the cerebrospinal fluid pressure is affected. This mechanism is probably best understood in a discussion of postural alterations.

Postural Experiments.

A study of the intracranial and intra-vascular changes that occur during postural alterations constitutes an important approach to an understanding of the cranio-vertebral dynamics, for during bodily positional changes all these components become definitely altered. As already pointed out, the venous and cerebrospinal fluid pressures stand in a very direct relationship to each other. In a previous communication [7] we have shown this relationship to hold in the various positions of the body (lateral recumbent, supine, sitting, upright, and hands-and-knees position). The changes in spinal fluid pressure occurring during these various positional alterations were considered to be mainly due to the following occurrences in the veins.

(1) The position of the right heart with respect to the neural axis. If the position of the body is such that the heart, which may be considered the true venous outlet, lies above the brain and cord (as in the supine position), the venous pressure in the dependent part of the cranio-vertebral cavity will be relatively high. If, on the other hand, the heart lies below the cerebrospinal axis (as in the hands-and-knees position), the venous pressure will be relatively low.

(2) The volume of the blood in the great veins. The general venous pressure will depend upon the degree to which the veins are distended by the blood which they contain. Anything which tends to increase the volume of blood in the abdominal and thoracic veins will tend to increase the pressure in their immediate tributaries. Thus, if the arms, legs, or viscera are below the great veins, blood will tend to accumulate in these dependent parts and the venous pressure in the great veins will be decreased. If, on the other hand, the arms, legs, or abdomen are above the great veins, the blood will tend to drain out of them and accumulate in the great veins and so increase the venous pressure.

(3) The weight of the viscera lying on the great veins and channels of cerebral and spinal venous drainage. The intestines, liver, etc., lying against the great veins will tend to compress them, impede the flow of blood and raise the venous pressure.

(4) The tension of the thoracic and abdominal muscles. Expiratory effort causes an increase in venous pressure and inspiration a decrease. Changes in intra-abdominal pressure due to contraction or relaxation of the abdominal walls are reflected in changes in venous pressure.

Thus, in the hands-and-knees position, the cerebrospinal fluid pressure is very low, for all the factors listed above are operating to lower it. Combined measurement of the jugular and cisternal pressures in the lateral recumbent, quadruped and vertical positions show that these pressures vary in the same direction and approximately to the same degree.[7]

That the arterial pressure stands in much less direct relationship to the cerebrospinal fluid pressure than does the venous pressure has been demonstrated by a great many workers in animal experimentation. Recently, Merritt and Fremont-Smith [8] have shown in man that the level of the cerebrospinal fluid pressure is no higher in arterial hypertension than in normal subjects. The changes in arterial pressure that occur during postural alterations are of clinical as well as of physiological interest. During alterations in posture the carotid pressure as measured directly [9] varies from about 20-40 mm. of mercury in a shift from the horizontal to the vertical position. In contrast to the internal jugular venous, and cerebrospinal fluid pressures which react very passively to positional changes, the carotid pressure shows a secondary (or compensatory)

rebound towards the horizontal level (Charts I-II-III). These changes in arterial pressure are, as pointed out by Leonard Hill, due probably to two main factors: (1) the effect of the force of gravity; and (2) the rôle of the vasomotor system. In arteriosclerotics or in deficient vasomotor types, this normal compensatory reaction following tilting is defective, so that the carotid pressure fails to hold itself at a certain level or falls to such a low level that fainting or possibly convulsions ensue (Charts IV-V). This abnormal reaction may be reproduced by the administration of vasodilator drugs when combined with upright tilting (Charts VI-VII). With such marked changes in arterial pressure, the cerebrospinal fluid falls to a low level. Normally, however, the moderate changes which occur in arterial pressure during postural alterations will not affect the cerebrospinal fluid pressure, for the venous pressure remains essentially unaffected.

The effect of the arterial and venous pressures upon the cerebrospinal fluid pressure may be explained on the following hydrodynamic basis: the cerebrospinal fluid may be considered to be enclosed by four walls[7]—(1) the dura; (2) the arteries; (3) the capillaries; and (4) the veins. The dural wall, because of its make-up and its attachments, may well be spoken of as rigid or practically rigid. The arteries, pumped up as they are to an internal pressure of from 60-100 mm. of mercury, also form a relatively rigid wall. The capillaries form a wall of lesser rigidity, and the veins a wall which is exceedingly elastic. Changes in arterial pressure will not, under ordinary physiological conditions, as already pointed out, affect the cerebrospinal fluid pressure, because whatever slight bulging of the arterial wall occurs with a rise in arterial pressure will be readily compensated for by a corresponding and partial collapse of the venous wall. The arterial pressure will then be fully supported by the arterial wall, and the change in pressure will not be transmitted to the cerebrospinal fluid. These same factors will operate to prevent a decrease in arterial pressure from being transmitted to the cerebrospinal fluid. Nor will the capillary pressure influence the cerebrospinal fluid pressure except as it changes the balance between fluid production and absorption. Simple changes in the volume of the capillary bed will be readily compensated for by changes in volume of the venous bed. On the other hand, any increase in venous pressure will cause a bulging

of the venous wall. Neither capillary, arterial, nor dural wall will support the venous pressure. The change in venous pressure, therefore, will be transmitted directly to the cerebrospinal fluid pressure.

Alterations in Posture and Cerebral Blood Flow.

The changes in cerebral blood flow that attend alterations in posture are not generally known. By means of Gibbs' thermoelectric recorder inserted into the jugular vein changes in cerebral blood flow may be easily followed during passive tilting of subjects. In several cases we have shown that when subjects are tilted from the horizontal to the upright position, a definite slowing of cerebral blood flow occurs, and that when they are tilted to the head-down position, an increase in blood flow results (Chart VIII).* Frequently, a compensatory mechanism similar to that occurring in the carotid pressure following tilting is manifested in the blood flow reaction; that is, a partial return towards the horizontal blood flow level. At times the greatest change in blood flow during upright tilting occurs during the first 15-30° with little further change when the upright position is reached. An important fact to note during tilting is that the cerebral blood flow is related directly to the change in direction of the carotid pressure rather than to that in the systemic arterial pressure (Chart IX). In fact, during upright tilting, the brachial and femoral pressures are seen to change in a direction opposite to that of the cerebral blood flow (Charts X-XI). Such changes in flow may be corroborated by the determination of the oxygen saturation in the jugular vein during tilting. In several such measurements made by the authors, the jugular blood showed consistently a definite decrease in oxygen saturation during upright tilting and a definite increase in oxygen saturation during head-down tilting, indicating respectively a decrease and an increase in the blood flow through the brain (Charts XII-XIII). This does not necessarily indicate a greater oxygen consumption of the brain in the one position than in the other, for a slower blood flow may be fully compensated for by a greater per unit consumption of oxygen, and vice versa. It is probably only when the cerebral flow is associated with abnormal falls in carotid pressure that a relative anoxemia of the brain results. Thus, in unstable vasomotor sub-

* These experiments were done in collaboration with Dr. F. A. Gibbs and will be published in more detail in a separate communication.

jects, a rapid change of the body to the upright position may result in a drop in the cerebral arterial pressure and blood flow to such a low level that syncope or possibly convulsions ensue (Chart XIV). The same phenomena may occur during upright tilting after the administration of vasomotor drugs, such as histamine or sodium nitrite.

THE EFFECT OF DRUGS ON THE CRANIO-VERTEBRAL DYNAMICS.

Any interpretation of the complex responses of the cerebral circulation to drugs is very difficult, unless the various factors which are concerned in its behavior are controlled (Chart XV).

(1) *Adrenalin.*—Intravenous injections of this drug, for example, cause a great rise in cerebrospinal fluid pressure.[10, 11, 12] This change may be interpreted as an actual increase in production of cerebrospinal fluid. When, however, it is observed that there is a simultaneous increase in venous pressure and a cerebral vasodilatation, the increase in cerebrospinal fluid pressure is readily explained on this basis. Again, vasodilatation of the cerebral vessels following intravenous injections of adrenalin [11] is obviously due to the great rise in arterial pressure which overcomes any cerebral vasoconstricting effect of the drug. Small doses of adrenalin, however, may be inadequate in increasing the arterial pressure sufficiently to overcome the local cerebral constricting effect of the drug. Following the intravenous injection of adrenalin, there is observed by means of the blood flow recorder an increase in blood flow through the internal jugular vein,[13] for not only is the arterial pressure greatly increased by adrenalin but the dilated cerebral vessels now offer less resistance to the flow of blood.

(2) *Pituitrin.*—This drug causes less marked hemodynamic effects than does adrenalin. When unadulterated with depressor substances, it causes a variable rise in arterial pressure. In cats under amytal anesthesia, Wolff [14] observed that local application of the drug to the pial vessels resulted in vasoconstriction, and when injected intravenously a rise in arterial pressure accompanied by a pial vasoconstriction occurred. Accompanying this reaction, there was a slight fall in cerebrospinal fluid pressure but this was soon followed by a rise in cerebrospinal fluid pressure as long as the blood pressure was maintained. In some cases, when the blood pressure rose to a great height the cerebral vessels at first dilated.

In the present authors' cases [12] in which pituitrin was injected intravenously, the following effects were noted: a fall in arterial pressure, a rise in cerebrospinal fluid pressure and jugular venous pressure. This reaction was probably due to the presence of adulterants in the extract. The rise in cerebrospinal fluid pressure in these instances obviously directly followed the increase in venous pressure and the cerebral vasodilatation. With the moderate rise in arterial pressure that intravenous injection of the pure extract causes, there is probably an associated increase in blood flow. The accompanying slight cerebral vasoconstriction [14] is probably insufficient in overcoming the increase in flow produced by the rise in arterial pressure.

(3) *Caffeine.*—In unanesthetized individuals, intravenous injections of caffeine sodio-benzoate have been noted to cause regularly a fall in cerebrospinal fluid pressure.[15, 16, 12] In the present authors' cases,[12] little, if any, change occurred in the internal jugular venous, or arterial pressures. The experiments of Finesinger [17] are excellent examples of the various effects of caffeine on the cerebral circulation, according to the anesthetic used prior to the administration of the drug. For example, in animals narcotized with amytal, intravenous injections of caffeine were observed to cause a dilatation of the cerebral vessels and a rise in cerebrospinal fluid pressure. In these cases, the arterial pressure fell to low levels, and it is possibly on this basis that the above intracranial changes occur. Again, under amytal anesthesia, Finesinger noted that local application of the caffeine to the pia caused dilatation of the cerebral vessels. During ether anesthesia, on the other hand, vasoconstriction of the cerebral vessels accompanied by a fall in cerebrospinal fluid pressure regularly occurred after intravenous injections of the drug. Injections of caffeine on post-etherized cats always caused a vasoconstriction of the cerebral vessels accompanied by a fall in cerebrospinal fluid pressure. It is unnecessary to explain the fall in cerebrospinal fluid pressure on the diuretic action of caffeine, for the drop in cerebrospinal fluid pressure following its administration occurs too rapidly for diuresis to have become effective. Finesinger believes that stimulation of the respiratory system with resulting alkalosis probably explains the vasoconstricting effect of caffeine on unanesthetized subjects.

(4) *Histamine.*—This drug, when administered to an unanesthetized subject or to one under amytal narcosis causes a marked

dilatation of the pial vessels and a great increase in blood flow through the brain.[18, 19] The arterial pressure usually shows a moderate fall. In the present authors' experiments,[12] the venous pressure as measured in the internal jugular vein remains unaltered or shows a slight fall. In cats, under amytal anesthesia, Forbes, Wolff, and Cobb [19] noted a pial vasodilatation accompanied by a rise in cerebrospinal fluid pressure and in general venous pressure and a fall in arterial pressure. Weiss, Lennox, and Robb [20] also noted marked engorgement of the pial vessels in a patient undergoing a cranial operation under amytal narcosis. In animals prepared with ether anesthesia, Forbes and Wolff and Cobb [19] observed, however, that histamine caused a narrowing of the pial vessels and a fall in cerebrospinal fluid pressure. These latter observations concurred with those of Lee [21] who, however, ascribed the changes wholly to the effects of the histamine rather than to the combined action of this drug and ether. In unanesthetized individuals, the increase in cerebrospinal fluid pressure undoubtedly signifies a cerebral vasodilatation.

(5) *Amyl-Nitrite.*—Dilatation of the cerebral vessels following inhalation of this drug has been observed by many investigators, including Schuller,[22] Mosso,[23] Hurthls,[24] Biedel and Riener,[25] Shephard,[26] Hirschfelder,[27] Raphael and Stanton,[28] Florey [29] and Leake, Loevenhart and Muehlberger.[30] Wolff [31] has made the most accurate measurements of the pial vessels following inhalation of amyl-nitrite. This worker noted the following reaction in animals: a variable pial vasodilatation, a coincidental rise in cerebrospinal fluid pressure, and a drop in arterial pressure. In man the present authors noted regularly a sharp rise in both cerebrospinal fluid and jugular venous pressures accompanied by a fall in arterial pressure.[12] This reaction differs from that following histamine injections in man only in the venous pressure response. It is probable that while amyl-nitrite causes a general rise (including cerebral) in venous pressure, histamine causes only a local rise in venous pressure in those parts where vasodilatation is most marked as in the brain. Thus, measurement of the pressure in the thin-walled cerebral veins following histamine injections would probably show an increase in pressure, while at the same time the general venous pressure may be unaffected or become even lower, as observed in some of the present authors' human experiments.[12]

(6) *Ether.*—As previously stated, this anesthetic produces profound intracranial changes. In animals, Forbes, Wolff, and Cobb [19] noted marked cerebral vasodilatation and a rise in cerebrospinal fluid pressure during etherization of cats. In man, the present authors [12] noted the following response to moderate ether narcosis: a sharp synchronous and an equivalent rise in both the cerebrospinal fluid and internal jugular venous pressures. Thus, it is readily understood that the action of a drug subsequently injected is obscured by the action of the ether itself.

(7) *Amytal.*—In marked contrast to ether this drug has little, if any, effect on the caliber of the pial vessels, the cerebrospinal fluid, venous pressures or cerebral blood flow in unanesthetized man (Chart XVI).[12] In post-ether cats, however, Finesinger and Cobb [32] observed pial vasodilatation and a rise in cerebrospinal fluid pressure under amytal narcosis. The only definite hemodynamic response in unanesthetized subjects seems to be a moderate fall in arterial pressure.[33,34] Because of the comparatively slight effect of the drug on the cerebral circulation, amytal as a preliminary anesthetic seems to be far superior to ether for experimental purposes.

(8) *Oxygen and Carbon Dioxide.*—In contrast to carbon dioxide, the administration of oxygen acts very inertly on the cerebral circulation. The influence of carbon dioxide almost completely obscures the effect of oxygen. Oxygen inhalations cause only slight constriction of the pial vessels and a slight fall in cerebrospinal fluid pressure. Carbon dioxide, on the other hand, shows an immediate and sharp pial vasodilatation with a marked rise in cerebrospinal fluid pressure. The arterial pressure usually shows a rise with a 10 per cent carbon dioxide mixture. These effects have been noted by Wolff and Lennox.[35] These authors state that an increased concentration of carbon dioxide in the blood, by increasing systemic blood pressure and by dilating the cerebral arteries, increases the speed and volume of blood passing through the brain. As a result, venous blood becomes more arterial-like. This permits a diminution of respiratory effort, a fall in blood pressure, and a decrease in caliber of the cerebral vessels. Thus, on an abnormal but constant gas mixture, an animal is able to adjust to the new conditions with a return of the cerebral circulation to its normal condition.

(9) *Insulin.*—At the height of the reaction of the body to intravenous injections of insulin (30-80 units), the cerebrospinal fluid shows a rather sudden rise followed by a sudden drop in pressure.[36] During the height of the rise in cerebrospinal fluid pressure, the blood sugar is at its minimum. The fall in blood sugar, however, long antedates the rise in cerebrospinal fluid pressure and returns to its normal level long after the cerebrospinal fluid pressure has resumed its original level. Whether the change in cerebrospinal fluid pressure is due purely to the hypotonic condition of the blood (hypoglycemia) analogous to the condition following the administration of hypotonic salt solutions, or is a result of a cerebral vasodilatation consequent upon the hypotonicity of the blood is unanswered at present. Since, however, there seems to be a diminished cerebral blood flow even in the presence of an increased pulse pressure [36] during insulin hypoglycemia indicates a cerebral vasoconstriction rather than a cerebral vasodilatation; for a cerebral vasodilatation accompanied by an increased pulse pressure would result in an increased cerebral blood flow. It is probable, then, that the increase in cerebrospinal fluid pressure during insulin hypoglycemia is due directly to hypotonic effects.

During the height of the insulin reaction, the internal jugular venous blood contains a greater percentage of oxygen than the control blood; that is, less oxygen per unit of blood is removed in its passage through the brain at the height of reaction than in the control period. This apparently diminished uptake of oxygen by the brain may be due to (1) inability to utilize its normal quota of oxygen during the hypoglycemic reaction, that is, partial anoxemia; or (2) an increased blood flow through the brain. Recent experiments by us on several subjects indicate that during insulin hypoglycemia, there is a slight decrease in blood flow through the brain (Chart XVII), a fact which would *per se* cause a greater rather than a lesser per unit consumption of oxygen by the brain. Thus, the conclusion drawn by Dameshek and Myerson [36] that, during insulin hypoglycemia, there is a partial cerebral anoxemia, a condition which probably accounts for the neurological manifestations of the drug, appears to be corroborated.

Summary.

From the foregoing data, the following general principles regarding the cranio-vertebral dynamics may be drawn:

(1) The cerebrospinal fluid pressure directly follows either a change in venous pressure or a change in caliber of the cerebral vessels. It is only indirectly related to changes in arterial pressure. Thus, a rise in arterial pressure does not affect the cerebrospinal fluid pressure unless the venous pressure, as a result, becomes increased. The studies on postural alterations particularly stress the direct relationship between the cerebrospinal fluid and venous pressures. It may be stated that under ordinary physiological conditions, the venous pressure may be considered the chief factor in affecting the cerebrospinal fluid pressure. It is only under unusual conditions, such as severe metabolic disturbances or under such conditions set up by injections of hypotonic or hypertonic solutions, that osmosis plays an important rôle in changing the cerebrospinal fluid pressure.

(2) The cerebral blood flow is related to two important factors: (1) the arterial pressure, and (2) the caliber of the cerebral vessels. Thus, a rise in arterial pressure will result in an increased cerebral blood flow unless there is an associated over-compensating cerebral vasoconstriction. Again, cerebral vasodilatation will be associated with an increased blood flow through the brain, unless there is an accompanying marked fall in arterial pressure.

(3) During changes in posture from the horizontal to the upright, there is a fall in carotid pressure which is kept within normal limits, probably mainly by the vasomotor system. Associated with this fall in pressure, there is a diminished cerebral blood flow and a greater uptake of oxygen per unit of blood by the brain.

(4) In individuals who have unstable vasomotor mechanisms or arteriosclerosis, the assumption of the upright position may throw an overwhelming burden on the circulation, so that the carotid pressure and cerebral blood flow fall abnormally. As a result, there is a cerebral anoxemia with production of cerebral symptoms, reaching their acme in syncope or in convulsions. The administration of vasodilator drugs, combined with upright tilting, may produce similar phenomena.

(5) The response of the cerebral circulation to the administration of drugs depends upon the complex pressure flow relationship between the cerebral and general circulation. Probably the most dramatic of the drugs used in this study was insulin. Not only do moderate to large doses of this drug deplete the sugar in the blood,

but may also produce a cerebral anoxemia. That an actual cerebral anoxemia occurs during insulin hypoglycemia is indicated by the facts that although the blood flow through the brain is diminished, there is a diminution in the jugular arterial difference in oxygen content.

The above experimental data demonstrate the applicability in the human subject of the techniques of jugular and carotid punctures and the blood flow method devised by Gibbs. By these methods a great amount of information regarding not only the pressure conditions occurring within the cranio-vertebral cavity, but also regarding the metabolism of the brain may be obtained.

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LEGENDS FOR CHARTS.

CHART I.—Effect of postural alterations (horizontal to vertical head-up and vertical head-down) upon the cerebrospinal fluid pressure.

CHART II.—Effect of postural alterations upon the internal jugular venous pressure.

CHART III.—Effect of postural alterations upon the carotid arterial pressure (direct) in a young dementia præcox subject. Note the compensatory rebound following each shift of position. The arterial pressure is represented by oscillations of an aneroid manometer connected directly to the puncture needle. (When the pulse pressure is normal, the maxima are about 10 mm. Hg. lower than the actual systolic pressure. The minima represent readings much higher than the actual diastolic pressure.)

CHART IV.—Effect of postural alterations upon the carotid pressure (direct) in an arteriosclerotic subject. Note the irregular pulse pressure; the marked drop in "systolic" pressure and the poor "compensatory" rebound in pressure upon head-up tilting. At the end of the experiment when head-up tilting was repeated, the pressure continued to fall to a very low level (from 175 mm. Hg. to 60 mm. Hg.). At that point, the subject was near syncope. His circulations immediately improved when he was returned to the horizontal position.

CHART V.—Effect of sudden head-up tilting on a young dementia præcox subject who was unprepared for the maneuver. The carotid pressure fell from 98 mm. Hg. to 26 mm. Hg. at which point the subject fainted. Immediate resumption of the horizontal position resulted in quick return to consciousness.

CHART VI.—Effect of head-up tilting combined with subcutaneous injection of sodium nitrite (2 gr.). Before the administration of the drug, head-up tilting caused a moderate fall in carotid pressure followed by a good compensatory reaction. At the height of the reaction to the nitrite, head-up tilting resulted in a still greater fall in carotid pressure to 20 mm. Hg. when the subject was practically in syncope. He regained almost immediate consciousness when returned to the horizontal position.

CHART VII.—Effect of head-up tilting before and after the administration of histamine (.6 cc. intramuscular). Before the injection of the drug, head-up tilting caused a moderate fall in carotid pressure followed by a fair "compensatory" reaction. Repetition of the tilting after the administration of the histamine resulted in a marked fall in pressure to 14 mm. Hg. with no

compensatory response. The subject developed clonic movements of the head, arms and legs which quickly disappeared when he was returned to the horizontal position.

CHART VIII.—Cerebral blood flow record by means of Gibbs' thermoelectric technique. There was an increasing diminution in blood flow as the subject was tilted from the horizontal to the 15°, 30°, 45°, and the vertical head-up positions. (B.F.—blood flow; B.P.—systemic blood pressure.)

CHART IX.—Horizontal to head-up tilting. Note that the cerebral blood flow and carotid pressure fall together while the brachial pressure rises.

CHART X.—Simultaneous measurements of the carotid and brachial arterial pressures (direct method). Note that the pressures change in opposite directions during head-up and head-down tilting.

CHART XI.—Simultaneous measurements of the carotid and femoral arterial pressures. The femoral exhibits greater gravitational effect than does the carotid pressure.

CHART XII.—Internal jugular venous oxygen content in the horizontal, vertical head-up and vertical head-down positions in 8 cases of dementia præcox and 3 cases of senility. Case 6 was a dementia præcox patient who almost fainted in the head-up tilting when the O_2 content was 7.3 vol. per cent.

CHART XIII.—At "A" with the subject in the horizontal position the O_2 saturation in the jugular blood is 67 per cent. With a fall in the blood flow in the 40° head-up position, the jugular blood O_2 saturation is 61 per cent. With a still greater fall in the blood flow in the 80° head-up position, the jugular blood O_2 saturation is 59 per cent.

CHART XIV.—Effect of vertical head-up tilting on the cerebral blood flow. Same subject as represented in Chart V. Excessive response to upright tilting with production of syncope.

CHART XV.—Effect of various drugs on the systemic arterial pressure, internal jugular venous pressure, cerebrospinal fluid pressure and cerebral blood flow in unanesthetized subjects. The changes in pial diameter were observed by Forbes, Wolff, Cobb, and others in animals under the effect of amytal.

(NOTES:—Insulin: The minus sign refers to the diastolic pressure; the systolic pressure is unaffected. Amytal: The minus sign refers to the period of injection of the drug.)

CHART XVI.—The effect of intravenous injection of amytal on the cerebral blood flow. Only a slight fall in blood flow occurs during the period of injection.

CHART XVII.—Effect of intravenous injection of insulin (40 units) upon the cerebral blood flow.

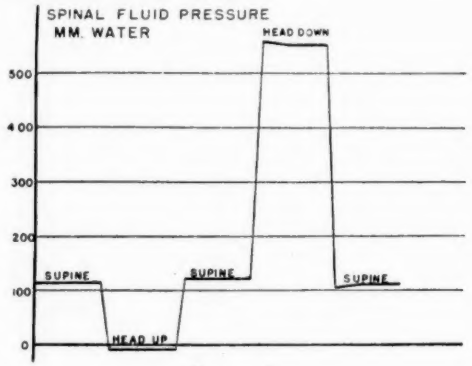


CHART I.

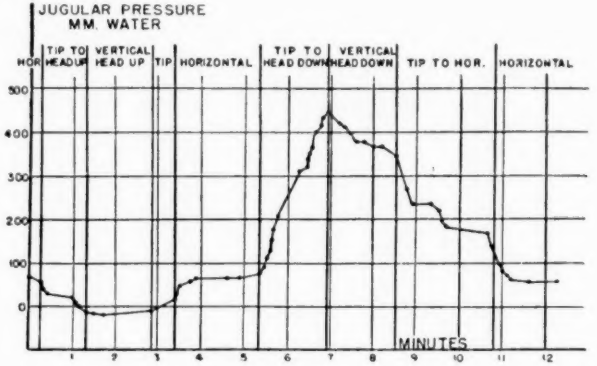


CHART II.

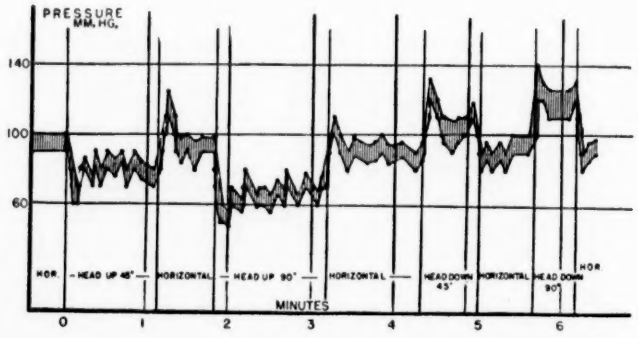


CHART III.

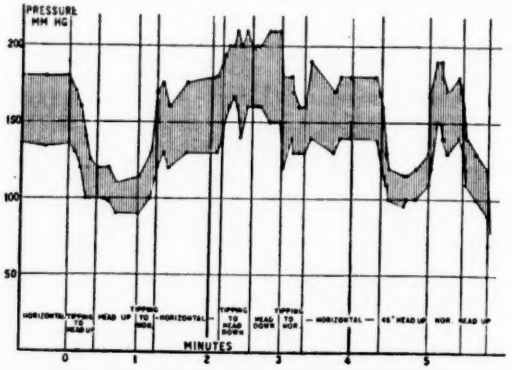


CHART IV.

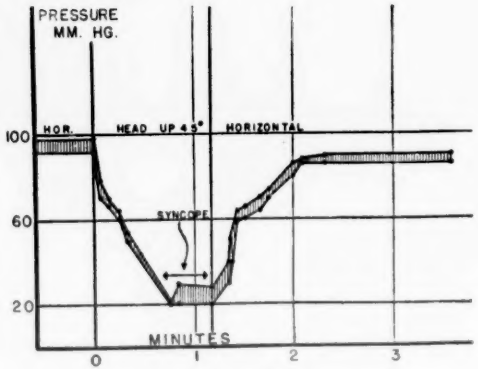


CHART V.

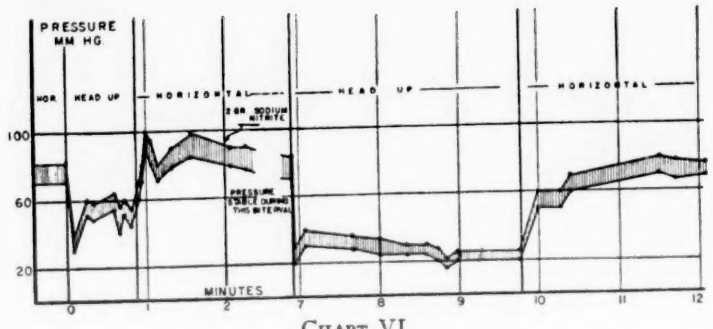


CHART VI.

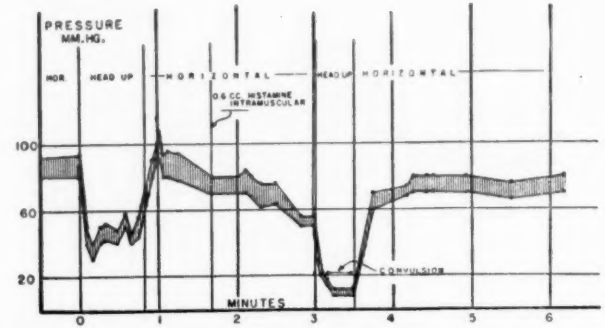


CHART VII.

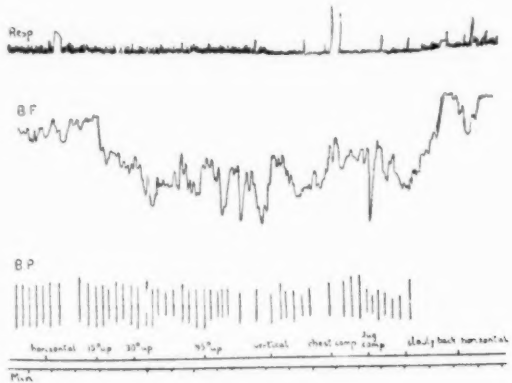


CHART VIII.

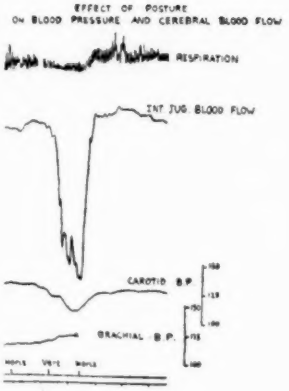


CHART IX.

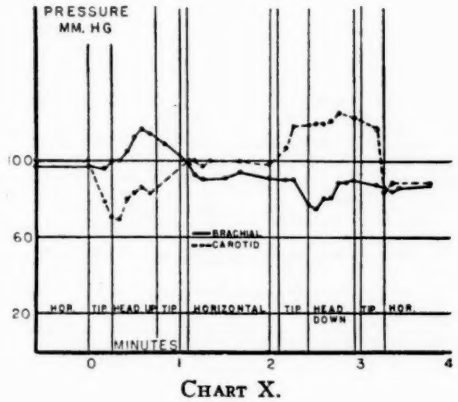


CHART X.

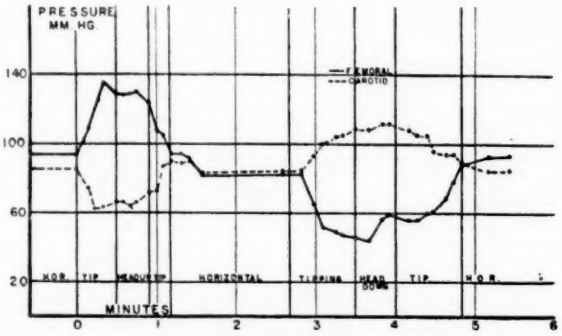


CHART XI.

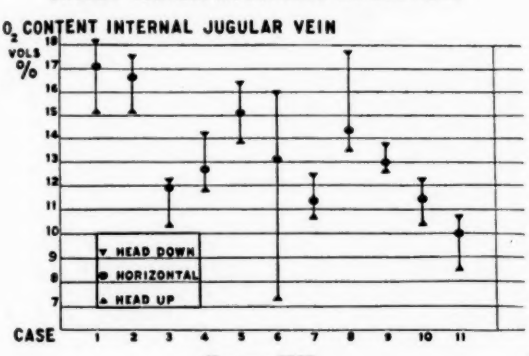


CHART XII.

CHART VIII.

CHART VII.

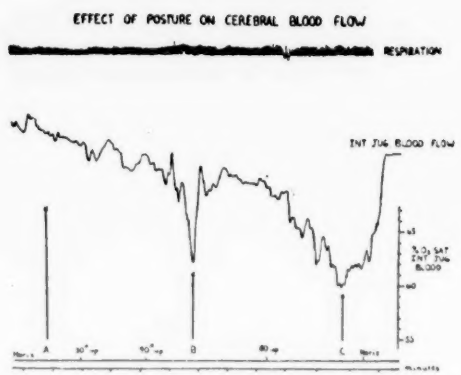


CHART XIII.

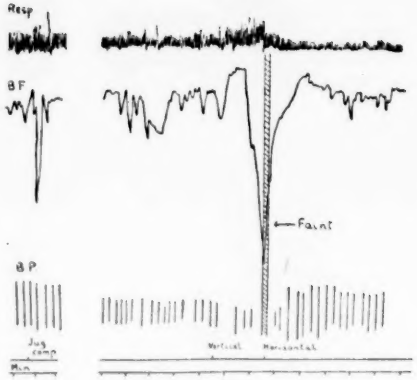


CHART XIV.

DRUG	ARTERIAL PRESSURE	VENOUS PRESSURE	C.S. FLUID PRESSURE	VESSEL DIAMETER	BLOOD FLOW
ADRENALIN	+	+	+	+	+
PITUITRIN	+	+	+		
HISTAMINE	—	0	+	+	+
CAFFEINE	0	0	—	—	—
AMYL NITRITE	—	+	+	+	+
ACETYLCHOLINE	—		+	+	+
AMYTAL	—	0	0	0	—
ETHER	—	+	+	+	
OXYGEN	—		—	—	—
CO_2	+	+	+	+	+
INSULIN	—		+		

CHART XV.

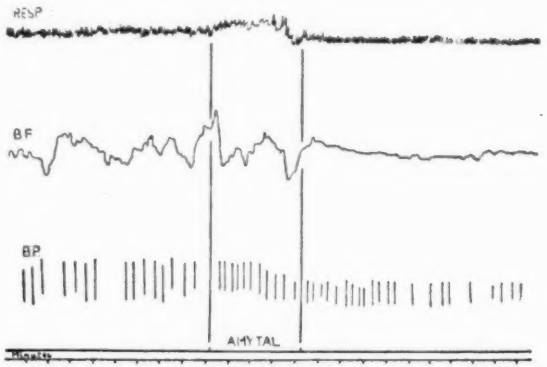


CHART XVI.

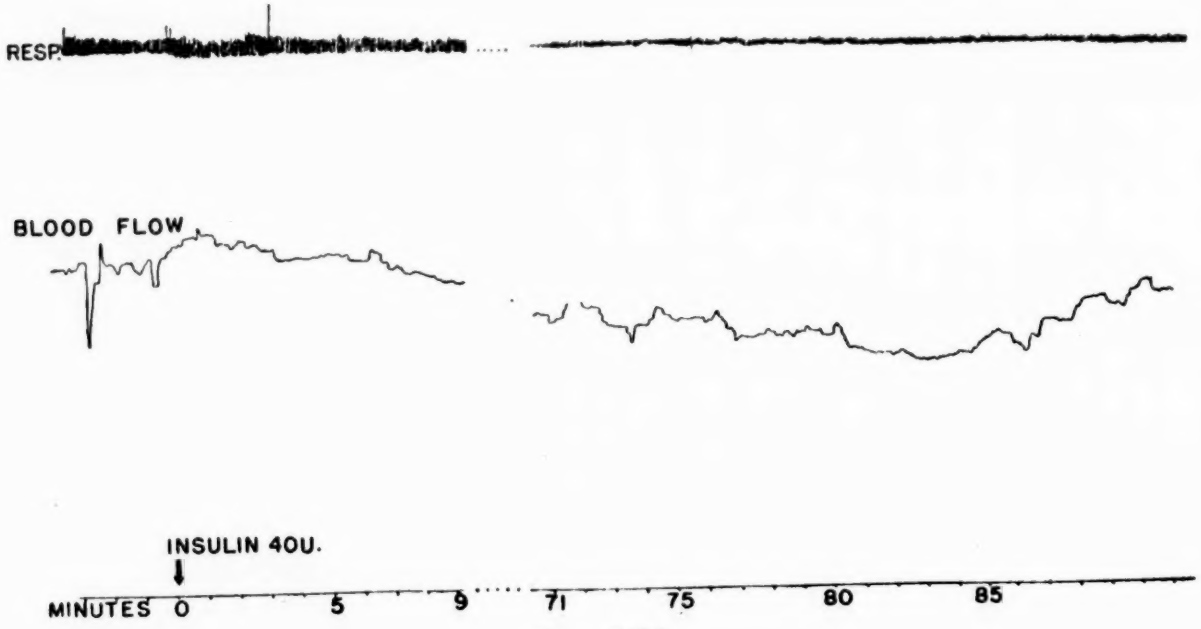


CHART XVII.

DISCUSSION.

Dr. Abraham Myerson (Boston).—I want to emphasize first of all that this is not Dr. Myerson's paper except in the conception of the ideas and general correlation of the activities, that the incredibly patient, skillful work required in this procedure represents the patience and skill of Dr. Loman. When you reflect that these experiments have been carried out for six or seven years and not one patient has had an infection, that he has been putting needles in, one in the jugular field and one in the cistern, and tilting the patients around, you can see that care, skill and something approaching genius in manipulation has been used. At the same time we insist the procedure is not too difficult; *e. g.*, the jugular puncture is not an arduous technique and any man doing a cistern puncture can do any of the punctures we have used.

A further point I wish to make is that we are not looking at these experiments from their relevancy to paresis, dementia præcox or any of the psychoses. We are laying down what we believe to be a physiology of the cranial spaces in relation to blood flow, spinal fluid pressure, arterial pressure and venous pressure. We believe the relation of spinal fluid pressure to venous pressure is immediate, but there is not direct correlation with arterial pressure; that there is more or less direct relationship to the width of the capillary bed.

Now these have led us naturally to the relationship between the dynamic factors and the chemical factors and we find a relationship of importance between chemical factors such as the use of oxygen, and also as we have not designated, the use of sugar, and changes in posture and the rate of blood flow.

Dr. Loman did not have time to tell you about the elaborate experiments with insulin. In certain phases of insulin glycemia the patient sweats and twitchings appear and in some cases it goes beyond these phenomena into a near convulsive state.

When you study what takes place at the brain, you receive some explanation. First of all, the spinal fluid pressure starts rising rapidly, then the sugar drops moderately. Secondly, the oxygen use as measured by the difference in content between the carotid artery and jugular vein is greatly reduced. At the same time, what would normally take place when the oxygen use is diminished, namely, an increased blood flow to make up for the lesser oxygen intake, does not take place and consequently there is anoxemia, and therefore there results the twitching and sweating and stupor and the sometimes semi-convulsive state.

So we have here in terms of dynamics a fairly comprehensible mechanism, an expansion of what takes place in insulin hyperglycemia.

You can compare this with what takes place in syncope as Dr. Loman's chart graphically shows, a very quick drop in the arterial pressure to about 25 to 20 millimeters of mercury, and a change in the oxygen intake, and a drop in the spinal fluid pressure takes place at the same time. Syncopes becomes thus a matter of measurable reduced arterial pressure, spinal fluid pressure and slowed-up circulation.

We are going to continue to work on the problem for a great many years. Our excuse is that this is one of the approaches to problems of mental disease. We have no hopes of telling why a person has dementia præcox, by this method, but we hope to be able to tell what takes place in the brain without involving mythical or difficult psychological interpretations but expressing it quite correctly in anatomical and mechanistic terms; not that we despise the psychological interpretations, we admire them, but we also marvel greatly at the skill necessary to reach them.

CHAIRMAN HUTCHINGS.—Dr. Myerson and Dr. Loman are to be congratulated upon this very interesting study which they have brought to the attention of the Association. The opportunity for further investigation is intriguing and it is satisfying to learn that the work is to be carried on, and I personally hope that they will find ways to record the influence of the emotions as well as of posture on the mechanics of the cerebral circulation. That will be difficult, of course, there will be obstacles to be overcome, but I have confidence in the workers in that laboratory to find the way to do it.

THE ALLEGED INCREASE IN THE INCIDENCE OF THE MAJOR PSYCHOSES.*

By HENRY B. ELKIND, M. D.,
Medical Director, Massachusetts Society for Mental Hygiene, Boston,
AND
MAURICE TAYLOR, PH. D.,
Federation of Jewish Philanthropies, Pittsburgh, Pa.

Many authorities in the field of eugenics believe that mental diseases are on the increase, particularly those types which are alleged to be hereditary, such as dementia præcox (schizophrenia) and manic-depressive psychosis. Medical authorities, on the other hand, have held on the whole to the view that there has been no increase. Our own studies have led us to the latter view.

The objective evidence for studies of this subject are statistical data given in official reports of states or governments. It is true that a cursory examination of these data might lead one to infer increases both in the general and specific rates of mental disease.

But there is a special statistical problem in the analysis of these data, namely, the determination of the biological situation independent of hospital, administrative, and other influences, in so far as this can be done practically. Obviously, only the statistics of those states or governmental units whose hospitals are highly efficient and adequate in numbers should be used. The classification of mental disease used by them should be the same; and as many states as possible satisfying these conditions should be studied in order to be reasonably certain that the rates of incidence are fairly stable and are not due to special conditions operative in any individual state. A relatively short period of time should be chosen for study to eliminate as much as possible the influence of changing administrative policies and medical practices within a state. In our opinion, 15 to 20 years is a safe period of time to study.

* Prepared for the Committee for the Investigation of Sterilization appointed by the American Neurological Association, Dr. Abraham Myerson, chairman, and adopted in its report given at the annual meeting held in Montreal on June 3, 4, 5, 1935.

Only two states satisfy the above conditions: Massachusetts and New York. The hospitals in these states are plentiful and they are conveniently located for the individuals who need them. The general social interest in the mentally ill has been high and has not changed much during the past 20 years or so. The physicians in charge are on the whole well trained; medical standards and equipment are excellent; and administrative policies have been fairly stable during this period.

It is admitted that the available statistics suffer from one serious limitation: they do not include most of the psychoneuroses nor a large proportion of the milder forms of the other psychoses which do not require admission to a mental hospital. In addition, no good estimate is available of what proportion of the serious forms is cared for in the community, although in our opinion it is small in the states chosen for study. Nevertheless, these statistics are the best available and do measure the amount of mental disease which developed to such a point that it was necessary to remove these cases from the community.

Massachusetts figures cover a period of only 14 years; New York only 18. The classification of mental diseases used by the hospitals in these states was changed in 1916 and statistics for earlier years could not be used. In the case of Massachusetts the years 1917, 1918 and 1919 were eliminated because in those years temporary admissions were combined with first regular court admissions and could not be separated.

Rates of first admissions are utilized in this study as the best available indices of the incidence of mental diseases or of specific types in a community.* (Temporary care admissions, *i. e.*, those remaining in hospitals 10 days or less, are not included in the rates for Massachusetts for these are not available except in the most recent reports of the state.)

Charts I and II give the rates of first admissions to the state hospitals in Massachusetts (1920-1933) and New York (1917-1934). The rates plotted include total first admissions and first admissions for the following individual psychoses: (1) senile psy-

* Arithlog paper was used in making an analysis of the data in Tables I and II (see Charts I and II) in order to obtain the relationship of time-trends between the various psychoses studied. Arithlog paper lends itself particularly well to this purpose.

chosis, (2) psychosis with cerebral arteriosclerosis, (3) general paresis, (4) alcoholic psychosis, (5) dementia præcox (schizophrenia), and (6) manic-depressive psychosis. The rates also include (1) and (2) combined and (5) and (6) combined, because in these several disease groups there are difficulties and considerable error in diagnosis between them.

Adjustments for age were made in computing all the rates. For *all psychoses* the general population was adjusted so as not to include children under 15, as few under 15 are admitted. For *general paresis* it was adjusted to include those 35 years of age and over, as few paretic cases come to the attention of mental hospitals before that age. The populations in the cases of *senile psychosis* and *psychosis with cerebral arteriosclerosis* were adjusted to include only those 55 years and over because, due to the nature of these illnesses, a case very rarely comes to the attention of a state hospital before the age of 55. The populations for the other psychoses studied were adjusted to eliminate children under 15.

Chart I for Massachusetts gives a practically flat trend in the case of *all psychoses*. If anything, the trend is slightly downward from the high rate of 118 in 1922. In New York, however, there is a slight rise. But in the light of work done by other authors * dealing with the general question of the increase of mental disease, this is probably only an apparent increase. It is highly probable that the slight rise in total admissions for New York State is in large part a general reflection of the increased interest in that state during the past generation in providing better and more adequate facilities for the care of the mentally ill.

It is possible, of course, that Massachusetts has already reached the saturation point as far as commitments for mental disease are concerned and that once it has reached this point one may expect a leveling or possibly a decrease in admission rates. It is to be

* Henry B. Elkind, "The Epidemiology of Mental Disease: A Preliminary Discussion. Is Mental Disease on the Increase?" AMERICAN JOURNAL OF PSYCHIATRY, Vol. VI, No. 4, April, 1927.

Ellen Winston, "The Assumed Increase of Mental Disease," *American Journal of Sociology*, Vol. XL, No. 4, January, 1935.

National Committee for Mental Hygiene, *State Hospitals in the Depression—A Survey of the Effects of the Economic Crisis on the Operation of Institutions for the Mentally Ill.* 1934.

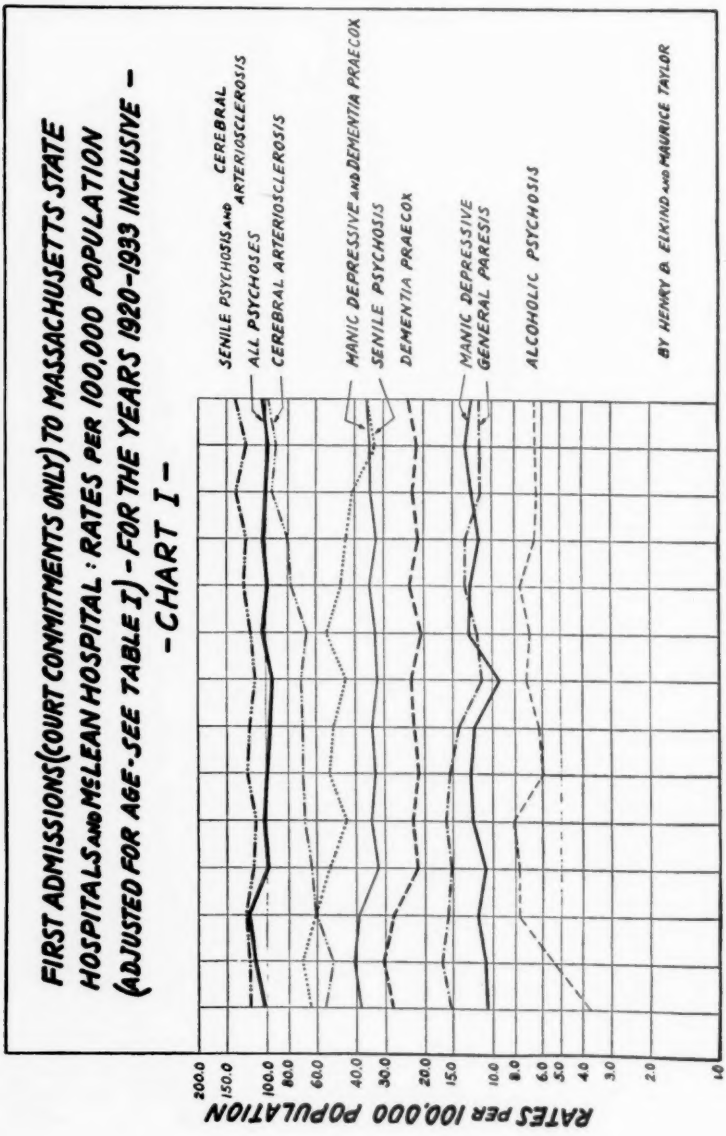

FIRST ADMISSIONS (COURT COMMITMENTS ONLY) TO MASSACHUSETTS STATE HOSPITALS AND McLEAN HOSPITAL: RATES PER 100,000 POPULATION (ADJUSTED FOR AGE - SEE TABLE I) - FOR THE YEARS 1920-1933 INCLUSIVE -
- CHART I -
SENILE PSYCHOSIS AND CEREBRAL ARTERIOSCLEROSIS
ALL PSYCHOSES
CEREBRAL ARTERIOSCLEROSIS
MANIC DEPRESSIVE AND DEMENTIA PRAECOX
SENILE PSYCHOSIS
DEMENTIA PRAECOX
MANIC DEPRESSIVE
GENERAL PARESIS
ALCOHOLIC PSYCHOSIS
BY HENRY B. ELKIND AND MAURICE TAYLOR
RATES PER 100,000 POPULATION
200.0
150.0
100.0
80.0
60.0
40.0
30.0
20.0
15.0
10.0
8.0
6.0
5.0
4.0
3.0
2.0
1.0
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933

TABLE I.

MASSACHUSETTS.

FIRST ADMISSIONS (COURT COMMITMENTS ONLY) TO MASSACHUSETTS STATE HOSPITALS AND McLEAN HOSPITAL.

(Rates per 100,000 population (adjusted for age) for the years 1920-1933 incl.)

	Population 15 years +				Population 35 years +	Population 55 years +			Population 15 years +
Year.	Alcoholic psychosis.	Dementia præcox.	Manic depressive.	D. P. and M. D.	General paresis.	Senile psychosis.	Psychosis with cerebral arteriosclerosis.	S. P. and C. A.	All psychoses.
1920.....	3.7	27.5	10.6	38.1	15.1	64.0	55.2	119.2	102.0
1921.....	5.3	30.7	10.8	41.5	16.7	69.0	50.7	119.7	111.0
1922.....	7.6	27.4	11.7	39.1	15.7	61.0	60.7	121.7	118.0
1923.....	7.7	21.5	10.9	32.4	15.2	52.0	62.6	114.6	98.0
1924.....	8.1	22.5	12.4	34.9	16.1	44.0	67.7	111.7	101.0
1925.....	6.0	21.1	12.6	33.7	15.4	52.0	68.5	120.5	100.0
1926.....	6.3	22.2	12.1	34.3	14.1	50.0	69.5	119.5	97.0
1927.....	7.1	23.0	9.4	32.4	11.3	44.0	69.8	113.8	94.0
1928.....	6.9	20.5	12.7	33.2	11.8	53.0	66.6	118.6	102.0
1929.....	7.6	23.0	12.6	35.6	13.1	46.0	79.5	125.5	99.0
1930.....	6.6	21.0	11.4	32.5	13.1	44.0	80.6	124.6	102.0
1931.....	6.3	22.8	12.3	35.1	11.3	41.0	94.1	135.1	100.0
1932.....	6.4	21.5	13.2	34.7	11.4	32.5	90.7	123.0	98.5
1933.....	6.5	23.6	12.4	36.0	11.4	36.0	97.9	133.9	102.0

TABLE I.

New York.

FIRST ADMISSIONS TO NEW YORK CIVIL HOSPITALS.

(Rates per 100,000 population (adjusted for age), for the years 1917-1934 incl.)

	Population 15 years +				Population 35 years +	Population 55 years +			Population 15 years +
Year.	Alcoholic psychosis.	Dementia præcox.	Manic depressive.	D. P. and M. D.	General paresis.	Senile psychosis.	Psychosis with cerebral arteriosclerosis.	S. P. and C. A.	All psychoses.
1917	8.2	20.3	11.5	31.8	25.4	49.6	33.4	83.0	94.9
1918	4.8	25.7	13.3	39.0	25.6	55.7	33.1	87.8	92.7
1919	3.6	25.2	13.5	38.7	23.6	58.8	33.5	92.3	91.6
1920	1.6	25.6	11.7	37.3	21.1	53.8	42.7	96.5	87.6
1921	2.5	26.6	12.8	39.4	20.5	51.8	44.0	95.8	90.2
1922	2.9	23.2	13.4	36.6	20.1	54.8	47.2	102.0	88.9
1923	3.4	22.4	12.0	34.4	18.7	56.0	46.0	102.0	85.4
1924	4.5	23.1	12.1	35.2	18.2	50.0	50.0	100.0	83.8
1925	5.0	24.1	12.4	36.6	17.4	54.7	53.3	107.0	87.8
1926	4.9	22.5	11.4	33.9	16.9	53.0	61.0	114.0	84.2
1927	6.3	24.2	12.0	36.2	16.5	53.0	67.0	120.0	89.5
1928	5.6	25.7	13.2	38.9	18.0	60.2	68.0	128.0	95.2
1929	5.8	23.4	13.0	36.4	16.3	54.7	73.3	128.0	92.5
1930	5.8	25.0	12.2	37.2	17.1	50.3	81.7	132.0	95.8
1931	6.2	25.3	12.5	37.8	16.6	46.6	85.4	131.0	96.3
1932	6.0	28.1	12.5	40.6	16.0	53.5	101.5	155.0	106.0
1933	7.1	28.5	14.1	42.6	17.2	55.8	108.2	164.0	110.0
1934	8.7	29.0	12.2	41.2	15.4	58.7	113.0	171.7	111.0

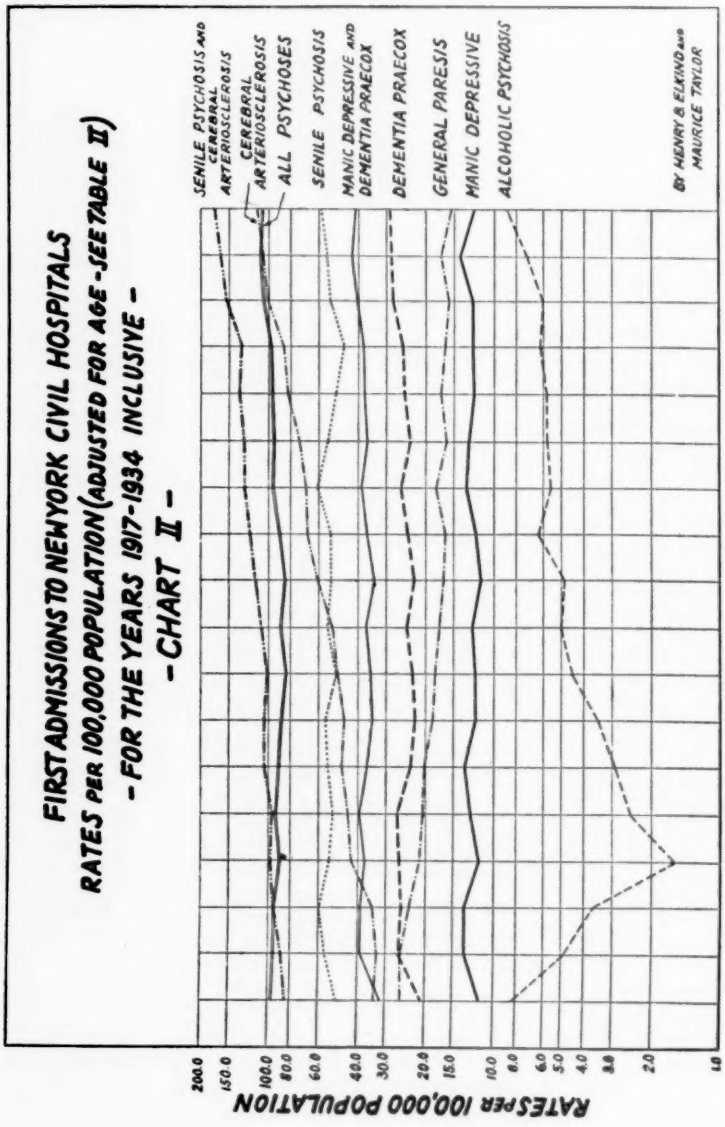
noted that the high rate for New York of 111 in 1934 was attained by Massachusetts in 1921 and exceeded by Massachusetts with a rate of 118 in 1922. These facts suggest that Massachusetts passed the crest in 1922 and has been showing consistently lower rates since, while New York has been reaching this point of community care of mental diseases only during the last two or three years. Massachusetts has been consistently ahead of New York in the number of beds provided by state hospitals. In 1921 New York provided 341 beds per hundred thousand of the population while Massachusetts provided 361. In 1922 the New York rate was 348 and the Massachusetts rate 368. The difference in 1934 is even more marked, New York presenting a rate of 406 and Massachusetts presenting a rate of 455 (civil state hospitals residence cases only).

Considering now the specific psychoses: Chart I for Massachusetts shows an increase in the trend for *psychosis with cerebral arteriosclerosis* but a decrease in that for *senile psychosis*. These two psychoses, however, should be considered together because both give considerable difficulty in differential diagnosis. When these two are added together, the trend becomes practically flat (at best, the increase is slight) and one may therefore infer that actually there has been little change in the incidence of the psychoses associated with old age.

The trends for *manic-depressive psychosis* and *dementia præcox (schizophrenia)* present practically the same phenomenon, that is, a questionable rise in the rate of incidence of manic-depressive psychosis and a questionable decrease in the rate of incidence of dementia præcox (schizophrenia). When these two are added together, which should be done because of the difficulties in differential diagnosis, the trend becomes practically flat. One may therefore infer that these two numerically important functional psychoses show no change in incidence for the period studied.

The trend for *alcoholic psychosis* shows practically no change after 1925 but a rise before that year. No inference, however, is made in the instance of this psychosis because of the disturbance caused by prohibition and repeal, and of the relatively short time-trend.

The trend for *general paresis* shows a slight but definite decrease which seems consistent in the light of our increased knowledge


FIRST ADMISSIONS TO NEW YORK CIVIL HOSPITALS
RATES PER 100,000 POPULATION (ADJUSTED FOR AGE - SEE TABLE II)
- FOR THE YEARS 1917-1934 INCLUSIVE -
- CHART II -
SENILE PSYCHOSIS AND CEREBRAL ARTERIOSCLEROSIS
CEREBRAL ARTERIOSCLEROSIS
ALL PSYCHOSES
SENILE PSYCHOSIS
MANIC DEPRESSIVE AND DEMENTIA PRAECOX
DEMENTIA PRAECOX
GENERAL PARESIS
MANIC DEPRESSIVE
ALCOHOLIC PSYCHOSIS
BY HENRY B. ELKIND AND MAURICE TAYLOR
RATES PER 100,000 POPULATION
200.0
150.0
100.0
80.0
60.0
40.0
30.0
20.0
15.0
10.0
8.0
6.0
5.0
4.0
3.0
2.0
1.0
1917
1918
1919
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1930
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1932
1933
1934

both of etiology and treatment of this disorder, as well as increased community facilities for diagnosis and treatment.

Chart II for New York gives roughly the same trends for the specific psychoses as does that for Massachusetts. There is, however, one important exception. The trends for the psychoses associated with old age when considered together show a distinct rise. (This is due entirely to an increase in the psychoses with cerebral arteriosclerosis; the senile psychoses show no increase.) It may be, of course, that New York with a larger urban population than Massachusetts finds it much more difficult to care for individuals suffering from psychoses associated with old age in their homes.

The *functional psychoses* considered together (manic-depressive and dementia præcox) present a more or less flat trend, as in Massachusetts.

The *alcoholic psychoses* show a definite rise in trend beginning with the year 1920, but slackening off in the later years; before 1920 there is a sharp decrease. But here, as in Massachusetts, the disturbance due to prohibition and repeal and the limited number of years involved seriously limit the validity of any inference in the case of this psychosis. However, it is interesting to observe that both states show agreement in the rise following the year 1925.

New York, like Massachusetts, shows a distinct but more marked decline in the trend for *general paresis,* for probably the same reasons.

In our opinion, there is little or no objective evidence available to justify the belief that the major psychoses have been on the increase during the past 14 to 18 years, except possibly in the instance of *psychosis with cerebral arteriosclerosis.* Whether there has actually been an increase or decrease in any of these psychoses, or no change in their incidence, is also difficult to state because we have no estimate of the number of mentally sick people in the community with these psychoses, especially in their milder forms. At any rate the available objective evidence is against the notion that the major psychoses generally are on the increase.

SYMPOSIUM.

PSYCHIATRIC IMPLICATIONS OF EDUCATION—PRE-SCHOOL.*

By DOUGLAS A. THOM, M. D., Boston, Mass.

An organized psychiatric interest in the pre-school child in this country started at about the same time that the nursery school movement actually got under way, that is, between 1919 and 1922 although the formulation for this new educational adventure had been in the process of development for some years before. In 1919 the Bureau of Educational Experiments opened a nursery school in the City and Country School in New York City. The Merrill Palmer School of Home Making opened a school to be used for a laboratory for education in 1919. The Ruggles Street Nursery School started in Boston, January, 1922. The Habit Clinic for Child Guidance in Boston began its operations in the fall of 1921 and the demonstration Clinics, supported and directed through the efforts of the Commonwealth Fund and the National Committee for Mental Hygiene, followed. Other important and permanent centers for child study have since been organized.

Looking over the literature on the subject of nursery school education, one finds the objectives fairly well-defined. One worker states: "The objectives for nursery schools focus on a change in educational attitude toward behavior problems in children. The responsibility of teachers and parents is to maintain an unemotional attitude." [1]

"The purpose of the nursery school is the full development of all the powers of a growing human being." [2]

"The preschool's aim is presented as the educative agency of the child's 'inborn predispositions.'" [3]

"Everywhere the nursery school has been a spontaneous, constructive enterprise for a better physical, mental, and emotional development of the child than the unordered home can foster. It

* This and the following three papers were read in a symposium, "The Psychiatric Implications of Education," at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935. A closing address by Dr. Vivian T. Thayer which formed part of the symposium is unfortunately not available for inclusion with this series.

has regarded itself as a necessary adjunct to mother care, rather than a substitute for it ." [4]

Patty Smith Hill states that " The nursery school is an outcome of changing society—shortage in houses, limited space, and women in industry, all being factors in this change." [5]

Dr. George D. Stoddard, one of the pioneers in the nursery school movement, speaking in the same vein states that " Nursery schools and kindergartens are in themselves a definite response to one great change in our social order; namely, a better understanding of the developmental and social needs of young children." [6]

It would seem, therefore, that the nursery school movement is a response to the appreciation of the fact that some type of organized education should go hand in hand with the mental development of the child and furthermore that education should incorporate into its general plan a recognition of the fact that the habits, personality traits, and mental attitudes which are formulated during the preschool years are worthy of serious consideration in the total development of the individual. No one can deny that this broader conception of education which has for its objective laying a substantial foundation for future mental and physical health as well as cultivating the soil for the more constructive form of intellectual training, is absolutely sound. That we have at the moment no definite yard stick by which to measure the achievement of the nursery schools does not seem to me to be particularly important. The important aspect of the situation is that during the past two decades a stand has been taken by the educators to so broaden their field—to include a more comprehensive program of the problem of growth and development of the child.

A review of the researches carried out by the nursery schools is not striking or convincing that those directing these schools have taken time to formulate the results of their work in the light of the subsequent life experiences of their graduates, yet had such studies been made, it would be difficult to evaluate just what preschool education contributed to either the success or failure of the group.

It has been pointed out that "Among the possible physiological effects of nursery school training may be those engendered by more sleep, better feeding habits, better health and even exhilaration caused by new interests, more attention and an understanding

teacher." [7] The same authors also pointed out that "A group of orphanage children placed from six to nine months under a nursery school régime showed consistently greater gain in mental test performance than did a carefully paired control group of orphans deprived of such experience." [7] While Tayler and Frank found that "Although children who had previously attended nursery school or kindergarten tested higher upon entrance to first grade than did children who had not had this benefit of such previous schooling, the increased intelligence apparently produced by nursery school and kindergarten training was not maintained after subsequent schooling." [8] Katherine B. Greene, Associate Professor of Education, University of Michigan, was impressed by the fact that " Nursery school children in kindergarten reacted more positively than did the children direct from homes because of independence and social balance learned in nursery school. Maladjustment came from trying to teach these children what they already knew and thus boring them." [9]

Dr. Eliot and her associates make the following observations:

Attendance at a pre-school group may help, in several ways, the child who has some special physical need.

In the personality of the individual child, which includes the sum total of his capacities and attitudes, the life of the pre-school group may have direct constructive influence.

1. It establishes routine habits—the regular regime of the school, the presence of other children who carry out the routine as a matter of course, the less emotional attitude of the teacher, each has a strong influence.

2. It builds up habits of self assistance—encourages the child to do for himself in so far as he is ready.

3. Creates ability to adjust to other person—both the aggressive and the timid child profit by group play.

Among common behavior problems where attendance at pre-school has been of significant constructive help are problems arising from extreme introversion and extroversion.

Personal success in the pre-school is achieved by adjustment to the group, whereas in the home the child's success frequently is attained by domination over certain adults.

Methods in Individual Adjustment.

1. Emphasize success either in accomplishment, or in self control, physical or emotional.

2. Definite guiding of the factors of the situation in order that the child may attain success.

3. Creating opportunities for the exercise of those aspects of behavior which need especial emphasis in development.

4. Changing unfavorable grouping among children by some regrouping.

5. Providing an orderly environment free from confusion, over-interference, over-suggestion.

6. Encouraging freedom of choice.

7. Quiet insistence upon fulfillment of a necessary condition before passing to a new interest.

8. Allowing the child to meet many situations suitable to his experience and maturity.

9. Ignoring that behavior of the child which is chiefly an attempt to gain attention.

10. Providing opportunities for the working out of individual purposes and interests.

11. Helping the child to feel that the best is expected of him and that his presence is welcomed by the group.

Mental Hygiene problems of the pre-school age are not particularly different than those of any other age group. Two general types of behavior problems.

1. Those in which failure in development or in social adaption are dependent upon distinct types of mental disorders.

2. Those types of behavior which in one way or another disturb the person with whom the child lives to the extent that they recognize the child as a problem.

Preventative Work (associated with pre-school education):

"1. Parental training—make parents conscious of the emotional bonds that exist between them and their children and some of the defects in their own emotional reactions toward their children.

"2. Adequate provision for meeting the child's developing intelligence, emotions, and physique.

a. Proper kind and adequate amount of recreation.

b. Contact with adults and children other than those in the family.

c. Surveillance of the child's activities so that they do not become dangerous to himself or disturbing to others.

d. Recognition of the point that play is the child's work and that through the doing of things, whether these be abstract or concrete, but particularly through the development of the large muscle masses, the best kind of training is provided.

Nursery schools have developed various forms of recreation and useful activity.

Many things have contributed to an increasing need for extra-home facilities, of which the nursery school is one.

1. The smaller size of the modern home.

2. Grouping together in smaller areas of larger and larger masses of people.

3. Assumption outside the home of the major tasks of producing and distributing the things which are needed to maintain the individual physically.
4. The going out of mothers to work.
5. Increasing emphasis on money as a medium of exchange.
6. Isolation of the family from it own larger family group."

It is of interest to all and is of special concern to the mental hygienist that "40 per cent of the nursery schools in the country reporting to the White House Conference gave as their first objective 'To aid emotional adjustment of children.' Twenty-four per cent—'Education of the parents' as their first or second objective, appreciating the need for training the whole chlid." [11]

Effort has been fruitless to obtain from the leaders in the nursery school movement concrete evidence of the effect of pre-school education on the subsequent development of the child's personality. Such information in the form that it could be utilized apparently does not exist. The very nature of the work obviously makes reliable statistical data, desirable as it may be, well nigh impossible to obtain. Dr. John E. Anderson, Director of the Institute of Child Welfare, in a personal communication, writes "Very little follow-up work has been done on nursery school instruction. There are tremendous difficulties in the evaluation of any educational program and particularly in one which lacks the specific content found in school subjects at a higher level and which can be measured." *

Considerable time has been used to point out the *purpose,* objectives, techniques and the difficulties in evaluating pre-school education at the moment. This step appeared necessary if we, as psychiatrists, are to determine just what the psychiatric implications are in this ever-growing movement and if we have anything to contribute which might add to its worthwhileness.

As psychiatrists, we are interested in any type of educational or social activity that holds forth promise of helping children acquire, in the process of their growth and development, those fundamental habits, personality traits, and mental attitudes toward life which

* From the Child Development Institute Teachers College, Dr. Lois Hayden Meek, Director; The Iowa Child Welfare Research Station, State University of Iowa, Dr. George Stoddard; and Merrill-Palmer School, Detroit, Michigan, Edna L. White, Director, one receives a similar response to any plea for definite statements relating to follow-up studies of the nature the mental hygienist would desire.

will give them greater assurance of avoiding the stresses and strains created by personalities and environmental situations with which so many young people come in conflict; yet if mental hygiene is to occupy a truly important place in preventive medicine, it must take on something of a more positive nature than simply helping the individual to steer clear of rather obvious shoals and getting wrecked.

A mental hygiene program which does no more than reconstruct conduct patterns after they have become twisted and warped and recondition undesirable habits after they have taken root is not really fulfilling its obligations in the field of prevention. Rather should we be thinking in terms of how best to create an environment and so educate parents that during the child's early years when so many fundamental attitudes toward life are in the process of development that he may escape those situations and experiences that create unhealthy emotional responses toward parental relationships, dependency, authority, inferiority, and various other egocentric drives. We should be concerned with what is taking place in other realms of the child's mental life such as his imagination, volition, perception. All these important aspects of his mental life are lying dormant awaiting the stimulation from some environmental source. Under certain undesirable conditions and unhappy personal relationships, important emotional outlets may be obstructed which should be serving a most useful purpose in ways that would help to stabilize the individual. No claim is made that consideration of the factors mentioned would prevent psychotic disasters, but there appears to me to be an important relationship with this positive approach to mental hygiene and such problems as delinquency and the neurosis.

Dean William L. Machmer of Massachusetts State College pointed out at a recent meeting, the necessity "without neglecting the three R's in their very broadest sense, for giving our young people a real opportunity to develop the three I's. These are:

> "Independence—the courage to be different
> "Initiative—the capacity to be different
> "Imagination—the joy of being different." [12]

The mental hygienist is not particularly interested in the fact that intelligence quotients are temporarily raised. He is vastly more

concerned over the possibilities held out by pre-school education that the child will be subjected to and guided by adults whose perspective is sufficiently broad to allow each and every child to enjoy his individual differences and at the same time develop an attitude of tolerance and the habits tending toward conformity. We, as mental hygienists and psychiatrists, are not unmindful of the fact that sound bodily health and a high intelligence quotient are not in themselves incompatible with inefficiency and unhappiness nor do we fail to appreciate that many problems are determined by a low social and economic level rather than by complexes and conflicts. Our task is to take the individual material as we find it and see that it is not exposed to insurmountable handicaps of a material nature or to the long-continued stresses created by emotionally driven adults.

Furthermore, we are no longer satisfied with simply removing the pitfalls. We want to have an environment well-endowed with personalities, disciplines and techniques which will be a challenge to the child to meet and combat successfully in a life full of reality situations regardless of the stage through which he may be passing. No period in life, however, can possibly take on the same significance or importance as the pre-school years. Fundamental attitudes toward life are conditioned largely by the experiences of these years.

If the objectives as outlined by the leaders in the pre-school movement can be achieved to any appreciable degree and if this type of education and training can be efficiently rendered to any large portion of the pre-school population of this country, I am convinced that its psychiatric implications are important, especially to that large group of under-privileged children; not necessarily under-privileged in the sense of their economic status, but under-privileged by virtue of the fact that they have been denied the opportunity of spending those early years in an environment uncontaminated by adult personalities whose outlook on life has been warped by their own unhappy experiences.

There are certain inalienable rights to which every child is entitled.

1. The opportunity of acquiring those habits which are essential to bodily health—eating, sleeping, eliminating, exercise.

2. The opportunity of developing his inherent intellectual equipment (whatever it may be) to its highest degree of efficiency.

3. The opportunity of being reared in an environment which is not dominated by emotionally unstable and mentally inadequate adults (whether they be parents, nurses, or teachers).

4. The opportunity of developing his self-regarding sentiment to a point where he will enjoy a sense of security about life, the feeling of being wanted and the desire to be worthy of the confidence bestowed upon him.

5. The opportunity to develop his initiative, imagination, will power, and independence.

6. The opportunity of learning to feel, think, and act in the presence of the facts of any given situation so that he can make the choice that is best suited to the demands of that particular situation rather than the choice that appears to be convenient for the moment.

Conclusion.

If a generation of children were permitted to enjoy during the pre-school years, an environment which fulfilled their physical, intellectual, and emotional needs as outlined and as expressed in the proposed plan for pre-school education, there is reason to believe that they well might attain a greater sense of security in all personal relationships resulting in a harmonious adjustment with parents, contemporaries, and those in authority. They would acquire confidence in self as a result of personal achievement, and adequate recognition, and something very much worth while and far-reaching would be accomplished. Such a group would find a happier and more efficient adjustment to the demands of life and relatively less conflict with society in general.

Dr. James Plant recently made the statement that " There seems to be evidence that maladjustment and delinquency are as rampant as ever and that we have no certain technique for their prevention and control." [13] No one who faces the problem frankly will be in disagreement with Dr. Plant though it may be looked upon as a rather sad commentary on the contribution which psychiatry proposed to make to the solution of these important social problems.

It occurs to me that pre-school education has already embodied into its curriculum many of the fundamental principles of mental

hygiene and this has been done in relation to the child in such a way and at such a time that this broader concept of education stands in a unique position to serve well the needs of a vast army of pre-school children. I know of no other institution with the possible exception of the home that has a more important contribution to make.

The psychiatric implications can only be understood and appreciated when we take into consideration the importance of the pre-school years in terms of establishing a foundation for mental health keeping in mind that mental health is something more than being free from mental disease. Mental health in its broadest sense represents a state of mind that permits the individual to approach his maximum efficiency, attain the greatest amount of happiness and satisfaction out of life and do these things with a minimum amount of friction. Life is one continuous series of choices and adjustments. Conflict and friction over making these adjustments invariably leads to varying degrees of emotional instability. Pre-school education stands in a position to make a real contribution to both parents and children. Psychiatry will do well to cooperate and encourage the pre-school movement not only contributing what it can toward its further development, but to be receptive to the opportunities which this new venture in education may add to the field of mental hygiene.

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PSYCHIATRIC ASPECT OF EDUCATION—GRADE PERIOD.

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The grade period representing the age span of six to thirteen is the first period of self-realization in a social setting outside the protected confines of the home. In this period he passes from the more individualistic phases of the earlier years and finds himself in a new world making demands upon him to use his own capacities for his own growth and education, and directing through curricula, and discipline the manner of their use.

Education essentially is a positive aspect of growth. Broadly speaking, it is growth. But here we are concerned with the more specialized aspects of education incorporated in school frameworks. Education, being a positive process, implies not only change, but an acceptance of change by the individual and the increasing use of his own energies to bring it about, as he relates himself to the external requirements for change—the teacher, group, etc. The facts and attitudes making up the content of each educational setting selectively become a part of the child's own development as he accepts the need to use his own capacities and also the direction of this use provided by the school.

The educational experience for a child in grade school requires a setting with form, content and direction. Into this organized setting comes the child who, in the process of his growth, finds this experience one that society has created for him as a part of the moulding influence which his culture exerts upon him; and which, in varying degrees, he finds he desires.

The child brings into each new educational setting, the capacities and feelings organized and experienced as a part of himself in the preceding years. In the earlier and less formalized domain of the home, he acquires his first sense of himself as an individual, different and separate from others. Here began the first acceptance of growth as a phenomenon which happens to him through an increasing use of his own energies. The nursery school and the kindergarten provided the first organized opportunity to use

and develop these early strengths in a new setting—apart from the home which gave him the first start toward his own separate existence. These settings provide the first supplement to the less formalized education of the child in the home setting.

Our culture organizes these growth steps and keeps them under some control. Compared to the early growth curve of children in more elemental cultures, the rate is slowed down by such control—and responsibilities are put on them more gradually. This also means that development is more organized and the child, as growth proceeds, finds more and more frameworks outside himself which mould responses. The natural and spontaneous nature of individual growth becomes disciplined by these frameworks. This means that growth is always an adaptation of the more individual responses to the requirements of his social setting. How he does this—with his own emerging capacities—and how the frameworks set up to direct it can be made social assets and not hindrances, both to the community and to the individual are the common interests of both educator and psychiatrist.

The psychiatrist has an interest in the nature of the frameworks, but his major concern is with the individual, who in the educational setting finds a place to organize and develop and test out his own creative capacities. Naturally, this interest includes a concern as to whether the framework accelerates or hinders this process and joins with the educator in evaluating how educational procedures are effected in stimulating positive efforts from the widely different types of individuals who come to them.

Many children do run into snags at this period when society, through a teacher and an organized group, is attempting to direct the intellectual and emotional growth of the child. Some of these snags are created by the child through experiencing here some of the feelings which get started in earlier periods of his life. Some are created by unsound and inelastic procedures of the school. But, if these later influences come to light as difficulties, they do so because of the responses stimulated in the child.

My particular part of the symposium concerns the child in the grades. Here many problems peculiar to this period of development are encountered. The requirements of school are beginning to demand more independent thinking from the child, there is more competition in the group life, creating more awareness of individual

differences. It is a period when there is more testing out of certain authorities. They are confronted with certain attitudes emerging from the group such as, to be enthusiastic about school is not quite the accepted thing. They are in a more active growing period physically—are becoming more restive under the restrictions of classroom life. They are more aware of the wide differences in adult opinions which create a more skeptical attitude toward learning. They begin to ask " what practical use is this." In other words, there is less submissiveness to educational contents and to formal requirements and a greater sensitiveness to their individual rights and interests.

These are rather natural reactions found in all human beings against the directive forces which operate upon them from the earliest days of life on through to death. Rebellion may have very healthy implication as well as serve as an indicator of difficulty. These assertions place the most interesting task before the child and the adult responsible for his direction. The child has the job of both assertion and acceptance. His freedom to be assertive, in the sense that he is asserting his own difference, does have an important bearing on his freedom to accept and appreciate difference in others.

Equally important is the philosophy of the teacher who is the immediate representative of this cultural force. She has to relate herself to children with wide differences and has the need to create some common ground upon which these differences may be expressed and yet keep in the foreground of her directive efforts the primary goal, the acceptance on the part of the child of his own difference and of utilizing his capacity responsibly in a social setting.

Where individual differences are accepted as the fundamental factor in all groups, then opportunities are afforded to use these differences creatively to provide a common background. But as rigidity increases with the goal of uniformity coming into the foreground, individual differences are minimized and not utilized. Rigidity brings out and gives a fertile field for intensfying the more negative responses. This does not mean, however, that absence of form and withdrawal of direction would mean the stimulation of creative effort. Every child needs authority and direction.

The concept of freedom to be himself in the earlier period if psychologically unsound because differentiation has not developed in the child to the point where he has any clear conception of what is his own self. So instead of freedom, there may be confusion and fear and a sense of isolation. Direction tempered by respect for individuality of the person seems a biological necessity.

In the grades, the child is getting his first organized opportunity to find what he can do as an individual, both with and against others. Here he finds how he can relate himself to others, meet the requirements of a school situation and do many things he would have no desire to do, except as they are required—develop his friendships in the group—restrict his own natural tendencies, talking, moving about, etc., to allow for group action.

Here the child has the interesting and important problem of preserving his own individuality while yielding to the required aspects of the educational process. The beginnings of this same adjustment start in the earlier relations of the home where, in widely varying degrees, things are required which demand a response on the part of the child—either for or against the thing required. The child brings into the grade situation the accumulated experience up to that time and carries it on.

The grades provide the further testing out ground for the child to determine his degree of freedom to use his own creative capacities in meeting the required and the spontaneous aspects of this experience. Here he has the opportunity to gradually make the required aspects of education (growth) his own and provide more and more of his own stimuli.

Since this period of growth finds the child in the process of determining and using his creative self and doing this under stimuli from without and within, the natural thing to expect is an ambivalent attitude toward teacher, curriculum, routine and other parts of the process. The rather natural response of the average child during this period is both to like and hate school. He accepts and fights it at the same time. Vacation is a period of freedom and the school is a period of restriction and work. A great deal of the content of education is not an expression of a child's spontaneous interest. In a large measure it is provided for him and he takes it as part of the required experience. With varying degrees of

rapidity he makes some of these interests his own. The bringing in of content provides one way in which the culture moulds the children and gives continuity to its ideologies. These are the directive forces to which a child adapts, sometimes with struggle—sometimes with acceptance.

As the directive forces multiply, putting more pressure on the child to fit into a mould, the stronger become the negative forces to ward off this intrusion. Placing too great emphasis on the intellectual aspects of education too early in the grades, before these activities become the individual's, may set in motion so much negative strength that they become resistive to intellectual development in later years, when normally we see these interests becoming a part of the individual's own development and are no longer imposed. The grade period is the important period in determining later attitudes toward learning. Being a period when a great deal of the content of the experience is outside the child's inner range of interests, means the interest must be created through direction and stimulation of natural curiosities. The achievement of this can be and frequently is blocked by too much content, too little imagination on the part of the teacher and too much direction during a period when the child is rather sensitive to the guiding of his rapidly developing personality.

Those trends in modern education which lay less stress on the intellectual aspects and more on the growth and emotional development take cognizance of this important point—and allow a child a better opportunity to grow into his interests and affords a more natural medium for a positive attitude toward learning. School is kept at school and not transferred into the home at night—with homework to provide a battleground between parent and child and a chance for further crystallization of a negative attitude toward learning.

The tendencies in most adult-child relations have been overloaded on the sides of direction and giving. This has been true in educational relationships and to a considerable extent is still true. The adults have the advantage and the tendency to exploit it. They know more than the child regarding the directions in which growth should proceed. They have patterns which they want realized in the child. Patterns of social and individual behavior, patterns of educational interest and so through the life of the growing child.

Their acceptance has many values for both child and school. But it also has another side. It has made possible more direction and more rigidity in frameworks. The natural tendency has been to exploit the child's submission in order that in the latter period of self-realization and self-assertion, the direction stimulated in this more plastic period will be fulfilled by the operation of their own wills. Here giving is motivated, as it frequently is, by the need to control.

I indicated the naturalness of this because through such direction cultures gain continuity and are perpetuated. But the psychiatrist, being interested in the normal unfolding of the individual's creative capacities asks how are we blocking self-direction and postponing its fulfillment by putting too much into this formative grade period, by stressing too heavily the intellectual (or instructional) aspects of growth and education.

These are questions the educator has asked and many of the changes in the educational frameworks are attempts to answer this question. The important principle of more participation on the part of the growing child has been incorporated into more school procedures, allowing for an earlier achievement of wanting school from within and less of the mere acceptance of it as an external requirement, and tolerated because everyone else does it.

Summary.

In summary I want to reemphasize that the grade period, both in school and in home and community, is not only a period of further self discovery for the child, but also a period of self-realization and a chance for the utilization of his own strengths as he begins to determine the nature of his interests and the quality of his responses. School is an instrument devised by our culture to give direction to part of the growth and to provide tools to aid the process of self-realization.

If too much rigidity and direction is provided, both in the content and in the quality of direction, the child may be blocked in the positive unfolding of his own interests and develop those negative attitudes which too commonly interfere with the achievement of the educational goal—self-direction in utilizing and developing own capacities. And if too little direction is provided, the child

who has not achieved any very clear realization of what he is may be left too much to his own direction which can lead to confusion and inaction.

The psychiatrist with his interest in the growth steps of the child and his awareness of how this growth is influenced can make an important contribution to the advancement of educational procedure as it proceeds to perfect its program to provide a healthy medium to direct the learning of the child. I would like to see this contribution come through attention to some of these broader issues rather than in the interfering and more authoritative ways which Mr. Thayer correctly criticizes in his abstract.

Collaboration on a different basis, with mutual recognition of the contributions and limitations of the other, can lead to more application of sound principles of growth to this period of the child's educational life.

PSYCHIATRIC IMPLICATIONS OF THE HIGH SCHOOL.

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Perhaps it is in order, before narrowing the focus to the special features of the high school, to consider some of the broader implications of education generally and of the school as a community agency.

Education is a process of growth in which many professions, all with special objectives, take part—the physician, dentist, teacher, judge, priest, nurse, social worker and recreation worker. It is a process of developing the potentialities of the individual child for meeting life's situations satisfactorily, and this is the common ultimate objective of all of these groups. The goal of psychiatry and of mental hygiene thus may be expressed in the same terms: developing the potentialities of the individual for meeting life's situations satisfactorily. It is evident that the field of education and that of psychiatry ideally conceived have much in common, and that as far as children are concerned, there is no place for conflict between them, except as they depart from this objective. But these identities do not stop with objectives. The two professions are striving for the same objectives *with the same children,* and it is inescapable that identities be found in their methods as well. The psychiatrist speaks of maturity and fixations, the educator, of growth and flexibility; the psychiatrist, of rapport and relationship therapy, the educator, of modern education as centering about the dynamics of pupil-teacher relationships. The psychiatrist and the teacher both sense the part played by their own personal problems in their professional jobs.

Education as a process is not limited to any one professional group, but is an inescapable element in the efforts of all who deal with children. The dynamics of human behavior are either consciously recognized and utilized in inspired education or blindly over-ridden in a short-sighted variety.

The close study of psychiatry and education tends to emphasize their similarities much more than their differences. To see the differences, one must examine the narrower, more proximate objectives. To appreciate the meaning of a school system in its various relationships, one must first of all appreciate the meaning of a community. He must see the community as a set of services established to meet needs that are too complex or expensive for people to provide for themselves.

People are integrated beings; they do not analyze or separate their health, welfare, transportation, work, school and recreational needs to a degree that makes it possible for a community to deal with them as separate problems by isolated, independent agencies. These needs appear in combinations known as life situations that can be served only by functionally correlated agencies that are separate only for the values of division of labor. In this division of labor, the school deals primarily in cultural transmissions of a formal sort; it passes on to the next generation the accumulations of the past that are too broad for the culture of the ordinary family to transmit. The school builds up the more complex aspects of the coming generation. That is the nucleus of its work, but some of these cultural things enter so intimately into the daily living of the child that the school cannot transmit knowledge alone. It is remaking or moulding the child in a much more fundamental way, and in so doing, comes very close to the interests of psychiatry. There is evidence that this moulding process is now becoming the primary rather than the secondary job of the school. These cultural transmissions, the skills learned, are often technically useful for such a short period, due to accelerating changes in our civilization, that the focus of the school seems to be shifting from mere transmission of knowledge and skills to the permanently significant moulding process. What used to be a by-effect now becomes the center of interest, and what used to be the center, *viz.,* teaching facts, retains some of its old values, but becomes, in addition, a temporary instrument for directing and controlling mental growth. If we can think of mental hygiene as graded in complexity, and including: custody, the adaptation to limitations; treatment, the attempt to remove limitations; prevention, the attempt to forestall limitation; and positive action, the attempt to develop assets, we

can see the functional relationship of psychiatry and the school. Their interests center in different parts of this range. Psychiatry and education are complementary disciplines occupying different ranges of the scale and necessarily overlapping to a degree. When we appreciate these two things, first, that the school cannot transmit knowledge alone, and second, that the school alone cannot transmit knowledge, the interdependence of the professions becomes clearer.

This overlap of function demands a degree of mutuality of training, a thing that at present is practically non-existent because the mutuality is not generally appreciated, and because of the jealously guarded departmentalization in our universities. These departments are caissons that provide for each group an atmosphere of its own that it tends to preserve. Much of what we have come to appreciate in this relationship goes back for its inspiration and method to the pioneer work of Ralph P. Truitt, in the La Salle-Peru Township High School, and to its late superintendent, Thomas J. McCormick. With the foregoing consideration of education and schools generally as a background, I shall pass on to some special psychiatric implications of the high school. The above recital does not complete the generalities. I reserve some for further discussion, even if they are not peculiar to the high school. There are many things about the high school that have deep psychiatric significance and that I shall consider in order: Certain changes are taking place in its methods and aims; the high school stands as a nucleus of emotional growth for the adolescent; the life period of the high school pupil has special meaning; the high school curricular and extracurricular subjects are delivered with varying objectives; the teacher as a person is a potent element in the life of the pupil; the social aspects of the high school loom large in the social development of the pupil; the psychiatrist in his work with parents meets conflicts on many of these points, and here and elsewhere through his influence in the community is in a position both to add much to the evolution of the school and to derive much from its experience that his own practice can never duplicate.

Among the changes that have taken place in the high school, most striking is its democratization. In 1880, 2.8 per cent of those of high school age were to be found actually in high school. Today,

over 50 per cent are included. This means that in the past the group was more uniform and was selected for high intelligence, high economic level, and high prospects of college; whereas today there is a wide range of ability and need. This is shown in the variation in I. Q. averages for those taking the different courses now offered by our high schools. When 60 years ago over half of the graduates of high school became college graduates, a curriculum shaped by college requirements was more harmonious with its function than such a curriculum would be today, when about one-seventh are destined to enter college and the greatest number enter clerical work. Over a long period, the high school and industry were reciprocally related; industry absorbed those who failed in school, and failure could be tolerated in the presence of this buffer. As industry began to shed its lower age levels, the school in turn acted as a buffer to it. But in doing so, the school changed its complexion. Failure could be condoned under the old régime which made it less imperative for the school to prognosticate educationally for the pupil. It could escape the limitations in the pupil by shedding him. The failing pupil could drop out and find an earlier vocational adjustment. Now, with a greater diversity of pupils and futures of pupils, mere "passing" standard grade tests cannot be considered a sufficient objective, because it offers no alternative to destructive failure. It has to avoid failure by more accurate prognostication and by discarding custom-made schedules. When one considers the importance in psychiatry of fitting jobs to capacities, the implications for mental health of this movement are obvious, and the extent to which in any particular child the school has kept pace with the movement is a matter about which the psychiatrist should consult the educator and collaborate with him. This is particularly true of the high school where divergencies in pupil capacity and interest loom larger. The homogeneous grouping of pupils, assignment of work individually in keeping with capacity, the provision of broader courses, such as general mathematics instead of concentrated algebra, all tend to encourage the needed flexibility of curriculum. The use of tests has now a long tradition behind it, but psychiatric study as a part of evaluation and prognostication in individual planning by the school is only just beginning and has far to go to define its limits and refine its methods.

Since this movement to reduce failure weakens the value of a standard grade test as a criterion, and reduces its use, it likewise removes or weakens the incentive to achievement, even if artificial, provided by the tests, and demands that the schools put some other incentive in its place. It is highly significant to psychiatry that this newer incentive is a more fundamental one and is found in the opportunity for satisfaction in creativeness that is provided to the pupil; *i. e.*, the expression of individual potentialities, in solving diverse real life situations instead of standard artificial ones. Music and art as they now appear in the curriculum tend much more than before to enhance the appreciation of the artistic compositions of others instead of the doubtfully useful pretense at developing technical facility.

This is in line with the principle that education for life consists not merely in foreseeing and planning for *future* needs, but perhaps even more important, in meeting in the healthiest way possible the contingencies of today. The school is thus a potent influence in the growth of personality to a degree that the psychiatrist cannot ignore. By motivating the pupil through arts, hobbies, life problems, and occupational interests, it enhances self-discovery and provides him with nuclei of higher tensile strength than is found in success in tests, to which to relate the various other experiences of his life, in other words, about which his personality can effect a more coherent integration. But this more positive growth element is not all. The diverse activities of our high schools give him that opportunity for symbolic expression that Dr. John Levy has shown in the case of art in psychiatric practice to have therapeutic value.

Then there are the psychiatric implications inherent in the age group of the high school. Here, in the planning of his courses, the pupil is forced to make decisions about his life work, and to see that not far ahead as a reality lies the end of a period of comfortable and protective dependence. As if that were not enough, he is forced to struggle with the reluctance of his parents to part with him, and with their tendency to try to continue to shape his career in keeping with their own interests. Otherwise, if he does not struggle he capitulates and forfeits his freedom and self-respect. Here is the age of highest expectancy of mental disease, the tenth

grade, where today two in every classroom of about 40 are prospective mental hospital patients. Here is the one place where professional observation is sufficiently continuous and informed to capture the prodromata of dementia præcox. Attitudes toward reality, emancipation of thought and action, feelings of inferiority, and religious conflicts all come to expression and crisis. The accumulation of records of high quality makes it not unlikely that the key to the schizophrenic evolution of the personality may be provided by the teacher well oriented in mental hygiene. The slumps of this period often present a nice problem of differentiating mental disease and defect. Even apart from these more dire problems, the high school once developed to its full capacity presents the best source for study of the genesis of personality in this second decade.

The school varies greatly in the extent to which the subjects provided in the curriculum are tuned to the functional motive. Written composition, for example, is overly preoccupied with the mechanism of expression and pays little attention to developing the need "to have something to say." On the other hand, oral composition is often delivered with the expressed objective "to help pupils meet with intelligence and ease life situations demanding speech." The dynamics of human relationships in actual or stylized life settings as revealed in literature, the drama, and movie are recognized as of value in shaping the pupil's personality through providing vicarious experience for him. It is expressive of this value that mental hygiene interest in secondary schools most frequently appears first in teachers of English.

These mental hygiene potentialities of school subjects are all too infrequently recognized, with the result that sometimes attempts are made to teach mental hygiene or its so called principles in a didactic fashion that often does more harm than good. The subject of home economics is full of possibilities for revealing to the pupil important elements of the family drama, the values of play, and the essence of child care and development in a more objective way.

It is not only the classroom that provides such an opportunity. The compensatory value of athletics and the escape value of ill-health give the sensitive teacher an appreciation of adolescent struggles

long before they impress the family and are carried to the doctor. The extracurricular activities reproduce the social problems of life more than do those of the classroom and by the same token provide a potent instrument for shaping the developing personality. The elements of competition and exhibition as a part of contests have important psychiatric implications, both etiological and diagnostic.

The school organization itself raises some questions that interest the psychiatrist. Outstanding is the differential in maturation of the sexes. Our chronological grouping in a co-educational setting throws together in the first year of high school a group of girls who have become women and a group of boys who have not yet become men. Teachers are sometimes puzzled by the relative aggressiveness of girls at this period. What co-education does in fixing patterns of interest and influencing heterosexual growth in the eighth, ninth and tenth grades is worthy of psychiatric study.

Since the school is focusing more and more on the things that *happen* to children in the course of education rather than *subject* matter, it is unavoidable that it should begin to consider more seriously the element of personal relationship between pupil and teacher, and the mental health of its teachers. It is of interest that schools are taking more interest in the living conditions of teachers, and in their relationship with their principles and other superiors.

It is very easy for the teacher to slip into the parental rôle when, on the one hand, her yearnings carry her in that direction, and, on the other, the child is seeking at the same time to escape and retain parental domination, and is susceptible to a compromise in the person of the teacher. She has a weighty responsibility in guiding this dependence to a happy conclusion, neither shying in the beginning, nor holding fast too long. With understanding, she can see the fickleness, crushes, trying attitudes and behavior, and rebellion of the pupil as the awkwardness of a growth process, neither bruising with unnecessary self-defense, nor upsetting the progress of growth through the injection of her own problems. What she is as a person makes a world of difference. It is often within her power, as a more wholesome substitute, to step in and interrupt the transmission from parent to child of neurotic patterns. It is to be expected that teachers will only slowly reach that stage of objectivity when they will accept supervision and training for this relationship,

involving as it does their own personal lives, problems and personalities. As a matter of fact, it is rare to find the personality of the teacher given formal consideration in practices of selecting teachers for positions. It is significant of this attitude that a teacher probably will go more readily to a neurologist or psychoanalyst than to a general psychiatrist for her personal problems, and it falls to the psychiatrist who has the most to offer her on this score to study the reasons for her attitude and ways of meeting it. The advances in both fields are thus tending to draw them into common interests, and each is in a strategic position to help or embarass the other.

With the democratization of the high school and the enrichment of curricular and extracurricular activities, there is a shift of the social life of the adolescent, and hence the social growth of the adolescent, from neighborhood to school. This is immensely important to the whole process of emancipation. It effects a more complete separation, but, at the same time, widens the gap and increases the possibilities of conflict. This is difficult enough where the gap represents merely the difference of two generations of the same culture, but is more serious as between the first and second generation of immigrant groups whose differences already are too broad for many to span. The consciousness and control by the school of this social element contains, however, potentialities for detecting interferences, and easing the jump so that it may be made less destructive. What is true of national differences is true to a degree of all cultural differences that neighborhoods tend to preserve and that uniform education tends to level. While the teacher is guiding growth in a way that makes this jump easier, the physician dealing with the parents is in a position to effect a similar change in them, and to coordinate his efforts with those of the school.

Psychiatry is the branch of medicine that has most in common with the work of the school. In the problems brought on by the congregation of pupils, the teaching method, the curricular content, the educational receptivity of the pupil, and the coordination of the school with the rest of the community, he has an interest that is validated again and again in the case studies of his patients. The school is constantly involved. There is probably no one outside the system who can do as much to win public support for a mentally

hygienic type of schooling as he, and there is no field that can appreciate more the preventive values potentially residing in the school.

It is clear that many of these advanced qualities attributed to schools are found only here and there, just as this is true of the ideals of psychiatry, but by centering attention on the forefronts, we are forced to see that the two groups have the chance to pursue many interests in common.

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THE PLACE AND POSSIBILITIES OF THE MENTAL HYGIENE APPROACH ON THE COLLEGE LEVEL.

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In 1930, a full-time psychiatric or mental hygiene unit was established at the University of Michigan, an institution with an average enrollment since that time of 11,684 students. This unit is now completing its fifth year of active functioning. Through this experience, naturally, a certain practical perspective has been afforded as to the nature of the problem implicit to college mental hygiene service and the limitations and possibilities of such endeavor. In view of the importance of this approach and its still mooted status respecting appropriate and authentic scope and form, it was felt that a critical epitome of this specific experience might possibly be of some worth to others engaged, or interested, in this field.

First naturally, in this connection, the question of set-up, still more or less an open one, presents itself for consideration. Rather differently than some, our organization from its inception, for reasons both of principle and financial expediency, was developed about the constructive use of competent psychiatric social workers. Experience seems eminently to have justified this formula.

To begin with, the staff consisted of one full-time and one part-time (six hours per week) psychiatrist, and two extremely well trained and experienced psychiatric social workers, competent also in clinical psychology, one a man and the other a woman. In addition, a secretary or office manager was provided and since then two half-time junior women workers, coming originally for further training, were taken on.

With respect to articulation point within the university structure, it should be stated, the department is organized as an integral part of the Student Health Service. This, also, experience has confirmed, at least on the basis of the locally obtaining conditions and circumstances, as a logical and effective arrangement. For

one thing, for a new venture, autonomous inclusion within a cognate and already well established and accepted organization constitutes, in itself, a by no means inconsiderable practical aid. It enables also what is really vital, a small, quiet and gradual beginning, and affords from the outset an excellent and dependable source of clinical material. In addition, an important consideration, the identification of the work is thus preserved with the body of medicine as a whole. This point, naturally, brings up the question of designation which has been a much discussed one. The unit is known as the Mental Hygiene Department. Likewise it is known to be under psychiatric direction. This we feel to represent the most constructive practical position. On this basis, there has been no lack of clientele, in fact, decidedly the opposite, with the total steadily increasing. Also it is the honest and factual position and, incidentally, serves a valuable educative function respecting the scope and implications of psychiatry as such.

Further, relative to Health Service connection, the immediate availability of ample and modern medical facilities, including opportunity for bed care (often an imperative need), at the unit's actual base of operations, is a matter of great practical moment. Such an arrangement, likewise, through the close contact afforded with the general Health Service personnel, does much to enable a properly consultative and integrated process of case-handling, so important to really adequate medical functioning. Of course, assuming other conditions, other placement formulæ might prove more appropriate and effective. Moreover, it is quite conceivable that time and development, intrinsic and extrinsic, may lead naturally, in this case, to certain modifications of the original situation.

Discussion, at this juncture, of the general mechanism of procedure, finally crystallized through experiential test as most expedient and effective, may be of interest. Each fall, in connection with the general physical examinations held during orientation week, all entering students are briefly seen so that arrangement for attention may be made where there is indication of special or immediate need. Short as this contact is, a really very helpful impression is afforded relative to the new group as a whole. In this connection, code notation is made on each student's examination card designed to indicate something, considering all aspects, as to

adjustment status and possible vulnerability respecting the university experience. Such notation has been found in a practical way to be quite valid and helpful as part of the medical docket, throughout the individual's university career. At this time, besides, certain special questions come up, such as admissibility to the university and the advisability of return for certain individuals because of difficulties arising in previous years.

The routine proper begins with the commencement of class exercises the following week, and proceeds from that point, on a crowded, full-time clinical basis to the end of the year. Cases come from various sources, as will be noted. They are seen, as far as possible, at stated appointment times arranged for by the secretary. Such appointments usually take an hour or more at the beginning. Subsequent appointments often may be somewhat less time-consuming, the total number of contacts depending, of course, upon the needs of the situation and the time available. The relationship to the student is a confidential, physician-patient one. This is the only formula that appears effective. Even in disciplinary cases most seems accomplishable through voluntary contact, with the understanding that an absolutely fair report directed to the most constructive solution will be made to the official agency concerned.

In the absence of special circumstances, students are first seen by the psychiatric social worker, the men being assigned to the man worker and the women to the women workers. By the worker, the situation is established and actually treatment or corrective measures, especially in simpler cases, begun. Following, the student is seen by one of the psychiatrists and then carried on by him with the aid of the worker, or in the absence of especially significant or major pathology, returned to the worker for handling. Such follow-up, of course, is conducted under the close direction of the psychiatrist, throughout the continuity of the contact. This mode of procedure has turned out extremely well. Although by no means a new finding, it has been surprising how effectively lay workers may function in this relation and how much responsibility they may come satisfactorily to assume, particularly after a period of close cooperative contact with the medical or psychiatric personnel.

Admittedly, from a strictly theoretical or absolutist point of view, the work may be somewhat limited as to elaborateness of clinical

approach and extensiveness of intra-psychic exploration. However, experience indicates need for a certain caution relative to the degree and abruptness of such intra-psychic penetration and upturning. It has been found best to approach first the practical handling of the immediate difficulty and from this to move to the undertaking of as much of the complete personality situation as circumstances and time allow, being careful to avoid having acutely on hand, at any time, more problem element than can be satisfactorily dealt with. In other words, with the central idea of promoting a maximal degree of self-insight and mobilization to an understood and unfeared life reality, the best working formula seems to be to proceed gradually and unforcedly, to the extent and at the rate set by the individual situation. Very important, in this respect, is it that the relationship with us is an entirely voluntary one and that whatever is attempted must be on the basis of readiness and willingness. As it turns out, this progressive or distributive type of approach subserves very nicely the matter of rapport. Frequently, in this way, where resistance is noticeable or sensed at first, the individual is often found to return later in a state responsive to indicated corrective endeavor.

Furthermore, the majority of the problems encountered, as will be seen, are not of an order where the practical indications require any very elaborate or extensive clinical investiture. Of course where such happens to be the case, that need as far as possible is supplied. Albeit, where the situation is markedly of such a nature it is often very questionable, in any event, whether continuance at school would in a clinical or practical sense, be considered desirable or constructive. In this relation, the principle followed is to retain in residence and aid in every way possible those for whom there is expectancy, with reasonable effort, of adaptation of such type and degree as to justify the continuance of the university experience. On the other hand, the mental hygienist should realize that he is functioning in a university, not a sanitarium; and that it is just as important a service to contribute to the discouraging of inadequate, incompatible or defective material as it is to encourage that which is positive.

Fundamentally, most of the situations are problems of social case-work with a psychiatric slant or facet. In short, they are sociopersonal adjustment problems. That is, a certain thing or

combination of things has happened to a certain adolescent or post-adolescent individual, of a certain make-up and vulnerability, and has resulted in a distressed impasse. This being so, whatever is to be done must be done in terms of the total situation. This manifestly, cannot be achieved through a series of detached, clinically professional, in camera discussions. Thus, as well as the patient, instructors must be seen, administrators consulted, and a variety of matters and aspects discussed with various other persons, as friends, parents and physicians. Jobs must be secured, financial aid arranged, programs lightened, living arrangements modified, social outlets afforded and so on. Parenthetically, it may here be stated that every effort is made to cooperate to the highest degree with other welfare units, and to avoid duplication of effort.

Out of all this, if anything meaningful is to follow, an adequate plan must be made taking fully into consideration the facts of the objective context as well as the personality structure and dynamicism of the individual patient. Furthermore, direct and practical help must be given the individual to carry out this plan as a well rounded whole, as well as specific effort directed to more effective personal integration *per se*. Obviously, this latter is absolutely imperative. However, practical experience demonstrates that technical psychotherapeutic procedure of itself is not sufficient for this purpose, and that it must proceed *pari passu* with the adequate management of the situation in its entirety. The problem is not, in the strict or more limited meaning of the term, one merely of individual integration, assuming the tenability of such a conception. Actually it is an attempt to integrate the individual in terms of a specific and demanding extrinsic field of force, the college situation. In other words, the building or adaptation is not of an *in vitro* type but must be, if possible, into and as part of this insistent and problem-bringing envelopment or setting. This being the case, the importance of the adequately trained psychiatric social worker for this type of work becomes readily apparent. And actually, for smaller institutions, such a formula would seem an effective one, provided opportunity were available for special psychiatric consultation as needed.

Further to facilitate envisagement of the nature of the work and its practical possibilities, a brief factual summary of our experience is herewith presented.

In the four completed years of its functioning, the unit has seen and given attention to 2301 students, 1521 men and 780 women, or 1.95 men to 1 woman. This is somewhat below the ratio of men to women in the student body as a whole, which was 2.6 to 1 during the period in question. The age range was from 14 years to 58 years, with a median of 20.05 years and a mean of 22.06 years. Of this number, it might be added 6.3 per cent were married and 0.4 per cent divorced.

Representation as respects the various colleges is shown in Table I. This follows quite well the distribution of the total student

TABLE I.

REPRESENTATION FROM VARIOUS COLLEGES OF THE UNIVERSITY.

	Per cent.
Literature, Science and the Arts	50.04
Graduate	16.20
Engineering	14.90
Law	3.80
Education	3.27
Medical	2.70
Architecture	2.50
Music	2.40
Dental	0.83
Business Administration	0.50
Others (Pharmacy, Public Health, Library Science, etc.)	2.50

population, save that on the whole the quota is rather higher, for our series, from the college of Literature, Science and the Arts, than from the professional and graduate schools.

Respecting university status when first seen, this may be gathered from Table II.

TABLE II.

UNIVERSITY STATUS WHEN FIRST SEEN.

	Per cent.
Freshman	26.8
Sophomore	17.4
Junior	19.4
Senior	16.2
Graduate	16.3
Special	3.6

Relative to the above, it is significant that all levels were represented fairly evenly save, as might be expected, for a distinctly higher number from the freshman group.

Students came or were referred in the following ways (Table III).

TABLE III.

SOURCES OF REFER.

	Per cent.
Health Service Staff	69.57
Self	17.60
Various other sources (administrators, instructors, student advisors, dormitory heads, friends, parents, etc.)	12.86

In this connection, it is of interest that, including re-opened cases, the number of the self-referred type increased from 24 per cent in 1930-31 to 44 per cent in 1933-34.

As to general health status on entrance, 24.3 per cent were given doubtful or unsatisfactory ratings.* This would seem somewhat higher, as might perhaps be anticipated, than occurs for class groups as a whole. Thus, on averaging the classes of 1936, 7, 8, those to which the at present employed rating formula was applied, the doubtful or vulnerable percentage is found to be 13.3.

With regard to academic aptitude, if any inference may be drawn from the fraction (34.4 per cent) taking the regular scholastic aptitude tests given by the university, our group fol-

* The following is the rating schema officially utilized by the University Health Service. Ratings below B are taken as vulnerable or unsatisfactory:

Rating A—These are free from recognized physical or functional defects which may be reasonably expected to interfere with university work or later life successes.

Rating B—These have such recognized defectiveness as *may* hinder university work or later life successes. Early extensions or development into serious conditions are not anticipated.

Rating C—These are the same as B, except that the hindrance is judged to be *very probable*.

Rating D—These should be in the university only upon the condition that they be carefully watched.

Rating E—These should not be in the university.

690 not included, chiefly because originally rated on a different basis than the above.

lowed quite well the general distribution with, if anything, a certain weighting upon the higher two quartiles.

Of some interest, too, is it that 45.31 per cent * impressed us as vulnerable or questionable, at the time of the fall examinations, from the standpoint of personality adequacy with respect to ease or capacity for effective adaptation to the university situation. The average figure, in this connection, for all entering students was 27 per cent.

As concerns number of contacts required, the average was 8.4 with the student, and 9.9 about the student with other persons involved. This latter type of interview is often just as time-consuming as the former and, in view of preceding discussion, obviously just as important.

Respecting duration of contact, the following was observed (Table IV).

TABLE IV.

NUMBER OF YEARS AS A CONTACT.

	Per cent.
One	80.85
Two	13.12
Three	4.53
Four	1.48

From this it would seem, other things being equal, that for student situations extremely long contact-continuity is not in most instances necessary.

Diagnostic findings are summarized in Table V.

The above is significant in that the number of situations characterized by pathology of major proportions is quite small. Nevertheless, this group is an extremely important one respecting which, for the benefit of the individual and the university, proper attention and disposition must be promptly forthcoming. Also important is the very large number of simple reactionary and maladjustive situations of pathologically minor type, very encouraging therefore therapeutically, but where at the same time considerable distress and disability had in numerous instances occurred. In

* Ratings available for 1249, the balance not having been seen during the fall examinations, or having entered at other times.

many such situations of course, in the absence of adequate remedial procedure, there is a certain potentiality of even permanent handicap.

It is noteworthy, too, that 24.9 per cent of the cases were definitely acute and of more or less urgent type, necessitating intensive attention immediately and not enabling handling through appointment later on when the docket might conveniently permit. Bearing on this point, it should be emphasized that as it orients itself practically, the work is far from an "arm-chair," placidly philosophical

TABLE V.

DIAGNOSTIC FINDINGS.

	Cases.	Per cent.
Schizophrenia	23	
Paranoid States (undifferentiated)	8	
Manic-Depressive Psychoses	19	
Taboparesis	1	
Toxic States	10	
Total Psychotic Situations	61	2.6
Epilepsy	25	1.0
Miscellaneous organic central nervous system conditions and special defects (including cerebral arteriosclerosis, post-traumatic states, epidemic encephalitis, speech defects, tics)	46	1.84
Simple Reactionary Depressions	242	10.5
Psychoneuroses and Psychoneurotic Reactions	883	38.3
Psychopathic Personality	56	2.4
Problems of general personality adjustment, not significantly clinical in nature	988	42.9

discussive procedure, with a certain and protected schedule and definite business-day hours. On the contrary, it takes the form unavoidably of a very active, clinical service including both ambulant and bed-patients, and replete with emergency demands occurring at all times, within and without the limits of the business day and week. It is a service, further, rendering imperative a high degree of flexibility and tact and, at times, taxing ingenuity to the utmost. Moreover, the responsibility entailed is a really very considerable one in the light of the implicit human and professional obligation to the best interests and rights of all concerned, patients, university and families, far flung over the country.

In short, the work comes to be a kind of combination *in loco parentis,* psychiatric and social guidance relationship. This to a large group of highly selected, not too stably integrated adolescents, circulating on their own in a complicated social situation, disturbed by personal problems and capable of mercurial reaction possibilities. Such a relation to 856 * individuals per year, it can readily be seen might well prove quite a problem to any small mental hygiene group, to meet which the usual training in psychiatry is far from adequate. Furthermore, and very importantly, only limited means of control and supervision are possible and contact must be through trust and not coercion.

Worthy of remark, likewise, is it that there were 197 (8.9 per cent) cases where the question of suicide was frankly present. Here it is of significance that suicide occurred in only two cases, both situations where contact was incomplete. In another instance, first contact occurred only after attempt and too late for emergency medical measures to be effective. The total number of suicides for the entire student body, as far as we have been able to determine, was six for the four-year period. The suicide question is without doubt a very real one and not to be trifled with. Still, for the student group at any rate, it does appear that where proper attention is promptly afforded the suicidal thrust may be in most cases satisfactorily resolved and in especially disturbed states, more particularly the psychotic, diverted or estopped until some adequate more permanent arrangement for care can be effected.

Factors, both subjective and objective, felt to have been of immediate or precipitating influence in the various difficulties encountered have been tabulated as follows.† (Table VI-A.) Admittedly such a tabulation is in some measure open to criticism as superficial, arbitrary and overlapping. Nevertheless in a practical way it is illuminating as to etiologic dynamics and as to elements, personal and social, showing themselves as most likely to give rise to problems in a student group. Of course in this connection it is important that in no instance was there just one item concerned.

* Total for the year 1933-1934.

† 486 cases not included because available data not felt to be adequate. Also, the effects of actual psychotic disorder, clinically specific psychoneurotic mechanisms and organic neuropathology as such were not included as factors.

TABLE VI-A.

PRIMARY FACTORS.

	Per cent of cases where noted.
1. Pronounced tendency to excitability and tensional response	52.9
2. Worry over school work	39.6
3. Actual physical disturbance and residual states	31.4
4. Instability and over-impulsiveness	31.1
5. Poor orientation to university as part of life situation	27.0
6. Over-sensitivity	26.5
7. Immaturity	22.2
8. Fatigue	20.1
9. Poor dependability, lack of regularization, poor self-discipline	17.7
10. Worry regarding possibility of disease	15.2
11. Poor scholastic achievement	15.1
12. Marked feelings of inferiority	14.5
13. Poor physical hygiene, including over use of tobacco and alcohol	13.5
14. General problems of sex adjustment	12.5
15. Stress of transition to university environment from relatively simpler type	12.0
16. Inadequacy, over-dependency, and over-suggestibility	11.5
17. Marked introvert or schizoid tendency	10.4
18. Poor methods of study	9.5
19. Financial difficulties	8.6
20. Poor socialization	7.9
21. Worry over examinations	7.8
22. Vocational anxieties	7.7
23. Worry relative to physical condition	7.4
24. Egocentricity, tendency to negative defense reactions	6.8
25. Over-timidity	6.6
26. Love affairs	5.7
27. Fear as to future	5.1
28. Pressure of outside work	5.0
29. Special disturbing family influences (as illness, conflict between family members, etc.)	4.8
30. Inadequate recreational outlets	4.5
31. Relatively inferior intelligence	4.3
32. Academic overload	3.8
33. Conflicts with family	3.0
34. Poor general family background	2.7
35. Poor home training	2.7
36. Marital problems	2.6
37. Homesickness	2.6
38. Special shocks	1.8
39. Specific misconduct, including disciplinary situations	1.3
40. Fraternity and sorority problems	0.8
41. Pressure of extracurricular activity	0.8
42. Unfavorable heredity	0.7

TABLE VI-B.

SECONDARY FACTORS.

	Per cent of cases where noted.
1. Immaturity	48.5
2. Over-sensitivity	41.2
3. Instability and over-impulsiveness	37.0
4. Marked feelings of inferiority	36.6
5. Poor socialization	27.5
6. Poor orientation to university as part of life situation	25.2
7. Inadequacy, over-dependency, and over-suggestibility	23.6
8. Poor general family background	23.6
9. Inadequate recreational outlets	20.6
10. Poor physical hygiene, including over use of tobacco and alcohol	20.3
11. Worry over school work	19.5
12. Pronounced tendency to excitability and tensional response	19.3
13. Vocational anxieties	16.0
14. Financial difficulties	15.5
15. General problem of sex adjustment	15.1
16. Poor dependability, lack of regularization, poor self-discipline	14.8
17. Fear as to future	14.6
18. Egocentricity	14.2
19. Over-timidity	14.0
20. Special disturbing family influences (as illness, conflict between family members, etc.)	12.1
21. Marked introvert or schizoid tendency	12.0
22. Poor methods of study	11.8
23. Poor home training	11.8
24. Unfavorable heredity	10.7
25. Pressure of outside work	9.6
26. Fatigue	9.4
27. Actual physical disturbance and residual states	8.6
28. Stress of transition to university environment from relatively simpler type	7.4
29. Conflicts with family	6.5
30. Love affairs	6.1
31. Poor scholastic achievement	5.2
32. Academic overload	3.4
33. Homesickness	3.2
34. Worry regarding possibility of disease	2.8
35. Fraternity and sorority problems	2.6
36. Worry relative to physical condition	2.5
37. Pressure of extracurricular activities	2.2
38. Marital problems	1.9
39. Relatively inferior intelligence	1.8
40. Worry over examinations	1.5
41. Special shocks	1.3
42. Specific misconduct, including disciplinary situations	0.3

Actually, as might be anticipated from appreciation of life situations generally, the problems were multifactoral. Often there were a half dozen or more primary factors with ten or more of secondary weight. With reference to factors of secondary or mediate valence, findings are listed in Table VI-B.

The results of treatment clinically may be brought out as follows: In 18 per cent, the situations were not of a type permitting or requiring any actual régime of therapy as such. That is, they involved, rather, matters of specific advice and decision such as opinion as to mental status, admissibility to the university or advisability of continuing, and points of administrative bearing. Also here included, were numerous specific personal questions, such as—"I am engaged to be married and my youngest sister has just developed epilepsy. What should I do?" In many of this category, although treatment in a formal sense was not carried out, very decided relief was enabled and situations of acute tension resolved.

In an additional 14.7 per cent the contact was incomplete. Here included were those who had to leave school for various reasons including the psychiatric, cases referred too near the end of the session to make full contact possible, and cases where cooperation actively or passively, was not satisfactory. The remainder, 66.7 per cent, was carried on for full therapeutic procedure.* In 87.1 per cent of this group, very conservatively estimated, the result was extremely gratifying. That is, there was noted marked improvement or, clinically speaking, seeming correction of the specific presenting difficulty. In 12.2 per cent some betterment was observed and in 0.7 per cent there was no apparent benefit. The high degree of positive response obtained is of course exceedingly gratifying. However, it is undoubtedly in a large measure explain-

* Relative to "treatment" cases, the following was found with respect to duration of contact:

	Per cent.
Contact continued for one year	76.10
Contact continued for two years	16.25
Contact continued for three years	5.74
Contact continued for four years	1.89

These findings follow very closely those obtaining for the total series (Table IV). However, for the "treatment" group, there was noted a slightly smaller percentage of single year contacts.

able by the highly selected nature of the material, the age zone and, most importantly, the absence in most cases of clinically really serious or malignant psychopathology.

In the light of the clinical results, the academic findings are interesting and the scholastic averages for our series, at the end of the semester when last seen, were as follows (Table VII).

TABLE VII.

SCHOLASTIC AVERAGES.

	Per cent.
A to B (A, A −, B +)	25.4
B to C (B, B −, C +)	51.0
C and below	23.2

In this connection, it may be added, 238 students were at some time on probation or "warning."

Similarly of interest from the standpoint of results, is the question of special distinction achieved, both academically and extra-academically. In this relation, of 745 students officially so distinguished there were recorded 207 elections to honor scholastic societies, scholarships, etc. On the extracurricular side, including such categories as athletic teams, class offices, committees, campus honorary groups, special professional societies, etc., there were 978 instances of outstanding recognition. In addition, there were 575 who had been admitted to membership in the various fraternities and sororities.

As to actual terminations or outcomes in terms of university status, these at the end of our four-year survey period, as far as could be determined, were as follows (Table VIII).

From the foregoing, it seems plain that in spite of limited facilities and an approach still rather tentative, it has been possible to be of considerable help to many of the student body. Actually, last year, this number represented 8 per cent of the entire student population and, frankly, I believe the surface has only been scratched.

Epitomizing this personal service, first, in this total there were not a few situations too severe or complicated to warrant continuance of student status. These were expeditely, humanly and professionally cleared, to the very real service of all concerned, the

individuals themselves, their families and the university. Then for many others, without formal therapeutic regimen, helpful counsel was possible respecting specific, often very disturbing, questions. And for the majority, actual processes of therapy were carried through with really gratifying results, not only with respect to the alleviation of the specific presenting difficulties but with

TABLE VIII.

OUTCOME.*

1. 781. Graduated.
2. 656. Continuing in attendance at the university.
3. 520. Not at present in attendance, but no actual contra-indication to same on basis of university requirements.
   The chief reasons assignable for these known voluntary discontinuances are as follows:
   a. 103. Scholastic situation not encouraging or actually unsatisfactory, though within official limits.
   b. 37. Financial.
   c. 47. Health (1 psychiatric).
   d. 31. Transfer to other colleges.
   e. 41. Miscellaneous personal reasons, such as family exigencies, marriage, special employment opportunities, etc.
   f. 261. No specific reason ascertainable.
4. 344. Not able to continue in attendance, for the following reasons:
   a. 229. Dismissed for scholastic reasons.
   b. 19. Dismissed for disciplinary or other administrative reasons.
   c. 85. Officially discontinued because of health reasons (26, somatic; 59, psychiatric).
   d. 11. Deceased.

* Of interest here is Bassett's comment to the effect that, in general, the college course may be expected to be completed by 41.35 per cent of entering freshmen—Mental Hygiene in the Community, Macmillan, 1934, p. 234.

reference to greater adequacy relative to the more fundamental issues of university and life adaptation. Many even, during their university careers, achieved noteworthy distinction both academically and extra-academically. In this relationship,* through the known existence of a friendly, human, understanding and confidential contact-point available throughout the college period, and

* Balance of paragraph is in main quoted from a previous article by the author—The Compass Needle. 1935, 1, no. 7, p. 4.

after, much more was accomplished it is felt than the simple proffering of advice or the mere professional handling of this or that perplexing situation or personal crisis. Actually, for many, not a little was achieved in the direction of true, and for the future really far-reaching, character training and development.

That is, if our experience has any significance, there is a very real job to be done and very real need. Furthermore, it is a job fitting naturally into the physician's basic tradition, work with individuals.

Certain other values, too, seem to be implicit to the proper functioning of a college mental hygiene service. Thus through work with individual cases, other campus agencies may be very materially aided in dealing with certain of their problems. Also, through their participation in the handling of such joint situations, a fuller appreciation of the psychobiology of motivation and conduct is made possible, leading to broader, more human and more valid formulæ for dealing with student problems, including the disciplinary. Furthermore, the realization that there is at hand a friendly, cooperative unit glad to help with, and take the responsibility for, certain special aspects, is a welcome and reassuring one; and releases such agencies more completely for the specific functions they may have in charge, whether it be the direction of a dormitory or the academic disposition of students.

Likewise, less directly, as a by-product of work with discrete student problems, there is added a certain quota to the contribution from all sources, relative to a greater grasp of the nature and meaning and implications of the human aspect of the student. That is, the mental hygiene function may supply its moiety to the fuller comprehension of the fact that the student is a human being at school and not a single item of a statistical mass, in the process of a mechanical incorporation of information. This realization, naturally, that a college is a community of personalities assembled for a common human objective, not merely a complicated mechanism, must be achieved if the educational effort is to return its greatest functional yield.

All these, in order of their directness or tangibility, are services which a university mental hygiene unit may aspire to perform and in line with these, lie the place and the possibilities of such departments.

Stated somewhat otherwise, it does seem to me the start should not be with fanfare and advertisement and take the form of any set, pretentious, official program to be applied from above. It should not be this sort of thing, eager to give those operating the university the magic word, pontifically, and to inject into the student body the supreme and final elixir. Frankly, we know not the former and have not the latter—no one has. That is, anything smacking of an imposed program is invalid, even destructive. Nothing is so apt to give rise to resentment and fatal lack of rapport. A certain original skepticism and reluctance to participate is always to be found, naturally, but such need not constitute a real or permanent obstruction. Furthermore, the overcoming of this should not be the primary objective, but rather the best handling of particular presenting student problems. If this is done well, the other cannot help but follow. In this connection, it must be realized that by training and experience the psychiatrist is primarily a physician, a worker with individuals, not an administrator of masses and movements, at any rate in fields not part of his medical branch, which education in a specific sense certainly is not.

On the contrary, the approach should be from below, from the simple specific problem case—the panicky freshman, if you will. From this, if the worker is adequate and sufficiently trained, benefit to the case may result and other cases may follow. Through this process, if there is any virtue in it and the worker, something perhaps may issue of value to the theory and practise of higher education. To my mind, the mental hygienist's primary rôle, and it is a real one, is to serve the individual in his special way to the best of his ability and through that the milieu to which he functions. That is, it is not his place, for example, to tell Professor Brown how to teach. Rather it is to be of what assistance he can, from his own category of competence, in aiding Professor Brown to as comprehensive as possible an understanding of John Smith, who is having difficulty in his course. In this way a constructive solution may be furthered for John Smith and, if there are enough John Smiths, a valid particle may eventually be contributed to the pedagogic principle. That is, the key in procedure would seem to be the highest degree of limitation-cognizant cooperation. Real solutions, here as elsewhere in human relations, may be reached only through mutual inter-acting growth, all along the line.

Furthermore, considering time limits and the size of most mental hygiene staffs there is hardly opportunity for much effective activity beyond the clinical function described, if that is to be properly administered. Here there is the very real danger of spreading effort too thinly, with the usual results. In fact, our own volume has become distinctly too high for adequate performance. Actually a case load of about 500 cases per year for a staff such as ours would seem the upper limit compatible with really effective results for all concerned; or for one full-time psychiatrist and one lay worker, 200 cases.

To be sure, much more might have been accomplished than our experience discloses and many mistakes undoubtedly have been made. Thus even respecting the individual cases, considerably more might have been done. Matters might have been gone into much more fully and there might have been attempted more thoroughgoing reconstruction, with closer direction and supervision. Also, for certain cases, too much time and attention may have been given. All this, however, is a matter of growth, experience and experiment and, as such, constitutes the essential challenge of the work.

Much more, also, could have been done in the way of the maintenance of contacts other than with student patients, thus promoting both direct and indirect effects and influences as mentioned. As staff increases are secured, this aspect may be more adequately attended to.

In this connection, too, mention might be made of function through lecture, singly or in series or courses. In the way of general orientation, this approach would seem from our experience to have a certain though perhaps somewhat limited usefulness. Mental hygiene is essentially a personal problem and as such is best undertaken on an individual basis. However, courses dealing with the content of mental hygiene and social psychiatry, as an aspect of the body of knowledge and as part of the general curricular structure, are of value and should be made available.

To summarize, there appears to be a very real place for mental hygiene on the college level and very broad possibilities still untapped, and even unrealized. These possibilities lie in the direction of a greater understanding of the personality elements involved, both the teaching and the taught and, through this, the attainment of a fuller and richer mobilization of available means to validly

realized needs. And the straightest way to all this, at this time, humble and undramatic as it may seem, to my mind lies in the most intensive, sincere, and meaningful application of all that the mental hygienist is, in self and training, to the specific problems of the individual student.

Grateful acknowledgment is made herewith to co-workers for unstinted aid and counsel, without which this report would not have been possible.

DISCUSSION.

DR. EDGAR VAN NORMAN EMERY (New Haven, Conn.).—We have had an unusually rich body of information and of concepts passed in front of us this afternoon.

Dr. Thom tended to emphasize the particular types of personality make-up, the individual and reality; Dr. Allen, the individual, his positive desires to learn and his resistances against learning; Dr. Stevenson, the potentialities of the individual for meeting life situations; Dr. Raphael emphasized his experience with 2300 individual students, and Dr. Thayer stressed the need for the closest possible collaboration between psychiatry and education. Personally I have worked for a good many years in the direction of the ideals that have been formulated. However, I do feel that there is another point of view that should be emphasized when a topic of this sort is under discussion. I think we get a certain perspective on this problem of interprofessional collaboration if we stop for a moment to catch a picture of what these two professional groups symbolize in our culture.

Education, except that type which is represented by Dr. Thayer and the progressive group, stands for the most part as an instrument set up within the culture for imposing upon children the cultural pattern, in other words, teaching children what they should know. Just to bring home what I mean, this morning we heard of a plan set up to provide for certification of psychiatrists. That is done by a cultural group, and the younger men coming along and the institutions in which they are going to get their experience must pay attention to this very real cultural pressure. Wherever you find education, except in its most liberal forms, you find this sort of pressure.

In contrast with education, psychiatry is a branch of a healing art—psychiatry meaning a soul healing, if you follow the derivation of the word. One has to do with education, the other with reëducation; the first has to do with the individual case-work methods, the second with the group processes. One has to do with treating those who are helpless in the face of their illness and hence need succor; while education, as we ordinarily see it, has to do with a "should" psychology and the imposing of the cultural pattern upon a group. We find individual teachers, here and there, shifting from this "should" psychology to an attitude that might be described as one of com-

passion and tolerance and understanding. This therapeutic attitude contrasts sharply with the attitude of the person who is teaching the child what he "should" know. In addition, when dealing with reading disabilities or when dealing with children presenting difficulties in social or emotional adjustment, these teachers tend to take on not a group method but a method that implies a special therapeutic relationship to a special child. Now this is the point at which psychiatry has a very real contribution to make to education.

However, psychiatry had best be wary against hazarding guesses as to what methods may be useful for group education. For instance, the other day I was quite astonished to hear a person from a very fine preparatory school in New York comment on their experiences with children coming from progressive schools, the aim of which, as I have understood it, has been to bring about within the child the potentiality for self-direction and self-determination and to do this in as pleasant and painless a manner as is possible. This person stated that in their experience children coming from these schools do not show the same initiative as the average run of children. They do extremely well if meticulous detail is given to them as to plan. Now I don't know whether this is true, whether it is a prejudiced observation or not. I use this simply as an illustration of the fact that educators should be very skeptical of group pedagogical methods that are based on experience derived from the study of individual atypical children. I am not at all sure that we can reason from our experiences as psychiatrists in dealing with individual children and set up programs for group pedagogy. To do so may bring more problems than it solves.

This whole problem of interprofessional collaboration is tremendously important. I think that eventually we shall achieve the ideals that Dr. Thayer and the other speakers have indicated, but perhaps we shall do it better and more intelligently when we realize that there are real difficulties that need to be realistically taken into consideration as psychiatry and education attempt to join hands whole-heartedly in the pursuit of these ideals.

DR. R. GRANT BARRY (Trenton, N. J.).—I think the reading of these papers is very timely indeed. The individual problems are numerous, particularly as to how the school man and the psychiatrist shall get together. I found in my short experience that a good many teachers, notably the principals, had some mental hygiene point of view, especially as regards the family as a whole. However, their chief shortcoming seemed to be with the shy, seclusive, asocial child who did not make any trouble in school. The child who was a problem they seized upon at once. But this particular one they left out of their reckoning.

I think that the psychiatrist should draw the teacher's attention to these children, because, after all, they are the cases which become or are potential præcoxes. In this connection the cultivation of artistic abilities is excellent procedure. They have gone so far with these projects in many schools as to have the children paint the scenery and get up the lines for their dramatic

courses. The intercurricular or extracurricular activities, should be more emphasized, particularly between the classes.

In the examination of new teachers I particularly centered part of the examination at least on what means of diversion they had, their hobbies and so forth; and they were surprised when they were asked about these things. Quite a few had very few means of diversion, particularly relating to their life outside of the school. I think the colleges are doing much more in this respect, particularly regarding interclass activities, than they are in the schools and really are accomplishing a great deal.

DR. FREDERICK L. PATRY (Albany, N. Y.).—I enjoyed the presentation from the different aspects that take one almost from the cradle until education stops, which is at the River Styx. I am particularly grateful to Dr. Thayer who gave us the point of view of the "emotional wholeness" of the child. To my way of thinking, we shall come back to the Mexican ideal of the uniqueness of the individual in terms of his appreciation of emotional satisfactions in the light of self-regard; and also how the intellect can in its turn contribute to that well-rounded emotional living that is effectively socialized.

Dr. Thayer mentioned several types of psychiatrists in the school system. Working in a state education department with principals and teachers throughout the state, I have also come across many types of commissioners, superintendents, principals and teachers. Although I could classify them, I don't think it would be helpful at this point to do so. But I do wish to give the impression that they are very cordial and open to the psychiatrist who serves them with the attitude and ability of adding to *their* strength and trying to see the problem through their eyes and that in the light of the schools' traditional onus which they carry and try to constructively modify. The more I see of progressive educators, the more humble I become and the less convinced that I have a great deal to offer them, except in the more intensive individualized understanding of the child as a whole and assisting in his socialization.

I think that the papers presented today certainly show quite clearly the need of a *combined* approach in meeting the problems of pupil adjustments and how we may better share these in the light of our particularized training and experience.

DR. S. ALAN CHALLMAN (Minneapolis, Minn.).—The problem of psychiatry in education has been an interesting one to me in the last few years since I have been working in the Minneapolis public schools. Dr. Thayer's remarks concerning the needed changes in the school curriculum interested me greatly. It is a problem to which those interested in progressive education have given considerable attention. From the point of view of one who is working in a school system where the rank and file of teachers have not as yet adapted themselves to the newer educational trends in spite of the

effort of the administration to promote the change, I can say this problem touches at the root of many behavior disorders in children.

Present curriculum requirements apparently arose in the school while the single goal of a cultural education was uppermost in the minds of educators. Their idea seemed to be that every child should be culturally educated and theoretically should come finally to a university and graduate with his education complete. But, as Dr. Thayer brought out, so few children go through the university now that that is out of the question as a practical goal.

It seems to me that from a mental hygiene standpoint, a great stride will have been made in education when the curriculum takes into consideration what children *are* doing and what adults *will have to do* in the future, and modifies the training that is given in the school (the course of study) so that it will prepare for these activities directly and not expect them to come as a by-product of a culture-seeking program.

THE HEMATOPORPHYRIN TREATMENT OF DEPRESSIVE PSYCHOSES.*

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Although Hausmann [1] as early as 1916 had demonstrated the photodynamic effects of solutions of hematoporphyrin, little practical use was made of his findings for nearly 15 years, when Huhnerfeld gave injections of the substance to animals and found that they became aggressive, overactive and quarrelsome, especially after exposure to strong light. After a series of these experiments, he began to use the drug as a therapeutic agent in the depressive psychoses. Two cases showing marked improvement were reported in August, 1930,[2] and by April, 1931 [3] he had collected 13 cases, 10 of which were institutionalized. The response in this series was extremely favorable in that 11 improved markedly and only two remained unaffected. The publication of his results attracted considerable interest and soon investigators in many European countries and in America were trying the new method. From the literature available at the present time it has been possible to collect a detailed report on the treatment of 149 cases, which are summarized in Table 1. Eight investigators from different European countries, and one group from this country report 113 manic depressives with 57 cases recovered or much improved, 20 improved, 10 slightly improved and 26 unaffected; 12 involutional cases of which 4 recovered, 1 was improved, 4 slightly improved and 3 unaffected; 24 miscellaneous cases of which 17 were unaffected and the remainig 7 showed only a slight improvement. It will be noted that while most other investigators do not record the same high percentage of cures reported by Huhnerfeld, yet in many cases there is distinct evidence of improvement in well over half the cases considered by the clinicians as due directly to the use of the therapeutic agent.

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

These reports of definite benefits from the use of hematoporphyrin gave rise to the present investigation. Its scope, however, is a little different from most of those previously undertaken. Accepting the evidence already reported, that the drug is of value

TABLE I.

CASES TREATED BY VARIOUS INVESTIGATORS.

Investigator.	Diagnosis.														
	(Pure Depressive) Manic Depressive Depressed.					Involutional Melancholia.					Miscellaneous.				
	No. of cases.	Much imp. rec.	Imp.	Slight imp.	No change.	No. of cases.	Much imp. rec.	Imp.	Slight imp.	No change.	No. of cases.	Much imp. rec.	Imp.	Sl. imp. transient.	No change.
Huhnerfeld[3]	13	11	..	..	2	..	..	..	..	..	..	..	..	..	..
Bianchini[4]	13	5	2	..	6	..	..	..	..	..	..	..	..	..	..
Kuppers[5]	7	6	..	..	1	2	..	..	1	1	5	..	..	2	3
Strecher, Palmer and Braceland[6]	23	5	6	6	6	8	4	1	2	1	6	..	..	1	5
Hartmann and Weissmann[7]	9	5	..	2	2	..	..	..	..	..	3	..	..	..	3
Becher[8]	5	3	2	..	..	..	..	..	..	..	..	..	..	..	..
*Giehm[9]	23	10	4	2	7	2	..	..	1	1	3	..	..	..	3
Vinchon[10]	17	10	5	..	2	..	..	..	..	..	6	..	..	4	2
Vinchon and Bourgeois[11]	3	2	1	..	..	..	..	..	..	..	1	..	..	..	1
Totals	113	57	20	10	26	12	4	1	4	3	24	..	..	7	17

* In Giehm's paper total cases are given as 24 but one is not accounted for.

NOTE:—Huhnerfeld[12] has recently reported 40 cases (which presumably include the 13 above) with only 5 unimproved, but as the cases are not described in detail they are not included in the above table.

It is somewhat difficult in some cases to fit the diagnoses of the European clinicians into the American classification, but every effort has been made to do this with due regard to the concepts of the original authors.

in milder cases of depression, it was our purpose to select for treatment those cases of long standing which had proved resistant to other methods of therapy, and in which the prognosis seemed to be definitely unfavorable. In this way we hoped to be able to minimize the effect of the tendency to spontaneous recovery which

is always so much of a moot point in evaluating the improvements recorded in these cases; and we hoped, too, that in dealing with severe cases the physicochemical changes would be more profound and more easily measured. In studying the problem two definite objects were kept in mind, first, the clinical response in these difficult cases, and second, the biochemical changes associated with their condition.

In all, 41 cases have been treated, not including repeated series on some in whom a first course of treatment had produced no improvement. In Table II the results of the therapy are recorded at length and in Table III they are summarized according to diagnosis. Of these cases 14 were diagnosed manic-depressive-depressed, and 6 recovered or were much improved, 2 improved, 1 showed a slight improvement and 5 were not affected. There were 11 involutional cases of which 5 improved, 2 showed a slight improvement and 4 were unchanged. Nine schizophrenics were treated, 1 of whom was much improved, 2 improved, 1 temporarily better and 5 not improved. Of the remainder 1 psychoneurotic was considerably improved, while the organic cases and one mixed type of manic-depressive remained stationary.

The terms used in classifying the cases may be defined as follows: *Much improved or recovered* indicates that the case has progressed under treatment and following it so that the patient has either left the hospital, or is ready to do so; *improved,* that the change for the better is not sufficient to justify discharge; *slight or transitory improvement,* that early improvement was not maintained or that the change was very moderate in amount; *not improved,* that no apparent amelioration of the condition was produced. In all cases in which improvement of any degree is recorded, it was felt that the change was due directly to the drug; some cases therefore which subsequently improved and in which the causal relation was not apparent are not included under these headings.

In evaluating these results it should be remembered that several of the cases recorded as unimproved (for example Nos. 11, 14, 26, 31, 35) received only partial courses of treatment, and that in two cases (Nos. 26 and 35) so little of the drug was given that no benefit could reasonably have been expected. In the remainder it might be pointed out that with the exception of a few cases (Nos. 1, 14, 26), the illness was of long standing and the prognosis unfavor-

TABLE II.

CASES TREATED IN THE PRESENT INVESTIGATION.

Case No.	Sex.	Age.	Diagnosis.	Treatment.	Condition.	
1	F	43	Manic Dep. Dep.	Mouth.	Much Improved Recovered.	Depression of 4 mo. duration. Not agitated. Usual symptoms.
2	F	34	" " "	Complete Hypo. Course.	"	Self accusatory, delusions of incurable disease. Apprehensive, agitated. Over a year hospital care before treatment.
3	F	38	" " "	Hypo. Course plus Mouth.	"	Depressed, apprehensive. In hospital year before treatment.
4	F	34	" " "	(Also Sod. Amytal) Mouth.	"	Confused, depressed, self-accusatory. Restless. Illness of about 4 mo. duration.
5	F	39	" " "	Mouth.	"	Overworked, retarded, anxious, apprehensive. Illness 2 mo. before treatment.
6	M	34	" " "	Hypo.	"	...pressed 1 yr. ago then manic spell, then present depression, suicidal, retarded.
7	M	44	" " "	Hypo.	Improved.	Previous attack. Anxious. In hospital 6 mo. before treatment. Some paranoid ideas developed during course.
8	M	46	" " "	Hypo.	"	Very depressed. Suspicious. Ideas of reference. 4 mo. in hospital before treatment.
9	F	57	" " "	2 Hypo. Courses—8 mos. apart.	Temporarily Improved.	Depression, followed by manic followed by depression (2 yrs. duration). Temporarily improved, not sustained.
10	F	43	" " "	Hypo.	Not Improved.	Depression of 1 yr. standing before treatment. No other treatment of any benefit to date.
11	M	66	" " "	Partly completed hypo. course.	" "	Second attack of depression in 4 years. 7 mo. before beginning treatment—depressed, agitated.
12	M	46	" " "	Hypo.	" "	Somatic complaints, seclusive; depressed 2 years. No other treatment effective.

TABLE II—CONTINUED.

Case No.	Sex.	Age.	Diagnosis.	Treatment.	Condition.	
13	F	48	Manic Dep. Dep.	Hypo.	Not Improved.	Three periods of depression in 7 years. Present one of 8 mos. duration before treatment.
14	M	43	" " "	Partial only. Hypo.	" "	Depressed, mute. retarded 4 mos. before treatment.
15	M	35	Manic Dep. Mixed.	Hypo. plus Mouth.	" "	Worried about physical condition and finances one year. Depressed, agitated, suicidal. Two determined attempts since hospitalization. 3 mos. in hospital before treatment.
16	M	57	Invol. Melan.	Hypo.	Improved.	Previous "breakdown" 10 yrs. ago. Present depression 1 yr. duration before treatment. Somatic complaints and ideas of guilt.
17	M	54	" "	Hypo.	"	Depressed, agitated 1 yr. before treatment started.
18	M	50	" "	Hypo. plus Mouth.	"	Worried, exhausted, indecisive a yr. ago. In hospitals practically continuously 7 mos. before treatment. Somatic delusions. Artificial menopause 8 yrs. ago. Constant suicidal threats.
19	M	61	" "	Hypo. plus Mouth.	"	Following severe sepsis 3 yrs. ago nervous, depressed. Suicidal attempt 19 mos. ago. Ideas of guilt. Hospitalized since attempt.
20	F	56	" "	Hypo. plus Mouth.	"	Artificial menopause 10 yrs. ago. Depressed 4 yrs. 2 yrs. under nurse's care and 9 mos. in this hospital before treatment. Speech blocking, indecisive.
21	F	41	" "	Hypo.	Slightly Improved.	Agitated, worried, sleepless, indecisive. Depression of 6 mos. duration before treatment.
22	F	47	" "	Hypo.—Partial.	Slightly Improved.	Depressed, agitated, suicidal. Duration of illness approx. 1 yr.

TABLE II—CONTINUED.

Case No.	Sex.	Age.	Diagnosis.	Treatment.	Condition.	
23	F	67	Involl. Melan.	Hypo. plus Mouth.	Not Improved.	Depressed, retarded practically continuously for 12 yrs. Previous hospitalization for 6 yrs. then home but not well. Present hospitalization 2½ years before treatment.
24	M	53	" "	Hypo. plus Mouth.	" "	Depressed, indecisive, inactive for 3 yrs. before treatment. Hospitalization 2 yrs.
25	M	54	" "	2 courses. Hypo. sep. 9 mos.	" "	Depressed 1 yr. before hospitalization and 1 yr. in hospital before treatment. Given 2 courses. No benefit from either.
26	F	53	" "	Hypo. but only very partial course.	" "	Depressed, agitated, self-accusatory, removed before treatment fairly started.
27	F	29	Schizophrenia.	Hypo.	Much Improved.	Two yrs. ago bored, unhappy, withdrawn. Explosive emotional outbursts. Depressed, suicidal attempt immediate before treatment.
28	F	38	Paranoid type. Schizophrenia.	Hypo. plus Mouth.	Improved.	Depression and ideas of reference for 1 yr. before treatment. Very unhappy, crying.
29	F	25	Type unspec. Schizophrenia.	Also Sod. Amytal Mouth.	"	Worried, agitated, depressed. Practically mute. About 1 mo. duration, before treatment.
30	F	39	Paranoid type. Schizophrenia.	Hypo.	Transitory. Slight improvement.	Many somatic ideas, and ideas of guilt. Marked depression and agitation. Duration 5 mos. before treatment.
31	M	39	Paranoid type. Schizophrenia.	½ course only—Hypo.	Not Improved.	Extremely agitated and suicidal. Ideas of 4 yrs. duration and hospitalization of about 1 yr.
32	F	47	Paranoid type. Schizophrenia.	Mouth.	" "	Depressed crying inactive. Refused food. Duration 6 mos. Hospitalized only about 2 weeks before treatment.

TABLE II—CONCLUDED.

Case No.	Sex.	Age.	Diagnosis.	Treatment.	Condition.	
33	F	31	Simple type. Schizophrenia.	Mouth.	Not Improved.	Five yrs. ago depressive attack lasting 6 mos. Sudden unexpected suicidal attempt 1 mo. before treatment. Numerous nihilistic ideas.
34	M	35	Type unspec. Schizophrenia.	Hypo. plus Mouth.	" "	Depressed, disinterested, apprehensive, fearful. Many somatic delusions 4 mos. before treatment.
35	F	39	Hypochondriacal type. Schizophrenia.	Hypo.—very partial course.	" "	Two yrs. ago complained of numerous somatic ills. Very bizarre complaints, depressed, weeping. Removed before treatment fairly started.
36	F	44	Psychoneurosis. Anxiety state.	Mouth.	Much Improved. Recovered.	Depressed, suicidal, over marital failure. Syphilophobia. Somatic complaints. Treatment started one week after admission.
37	F	48	Mixed type. Psychoneurosis.	Hypo.	Slightly Improved.	Depressed, agitated, apprehensive. Hypochondriacal complaints.
38	F	53	Psychoneurosis.	Mouth.	Not Improved.	Depressed 2 yrs. Hospitalized at intervals about 1 yr. Somatic complaints. Fatigue, worry.
39	F	54	Presenile.	Mouth.	Improved.	Gradually depressed for 3 yrs. Many somatic complaints.
40	M	58	Presenile.	Mouth.	Not Improved.	Gradual depression over 1 yr. Unable to work 5 mos. before treatment. Inability to concentrate. No interest. Noisy at night.
41	M	51	Simple Dep.	Hypo. 1 week only.	Not Improved.	Originally admitted as alcoholic. As this cleared, intense agitation and depression evident.

able; that in all cases except two (Nos. 4 and 29) all other drug therapy was withdrawn; that no special adjuvant therapy was given in any case; and that in many cases other types of treatment had been tried previously and without success. With these considerations in mind it appears that following the hematoporphyrin therapy, definite improvement and even recovery occurred in a number of cases previously regarded as of unfavorable outlook.

As might be expected the response is more favorable in those diagnosed as manic-depressive than in the other groups, and in the organic cases little was accomplished. The fact, however, that

TABLE III.

SUMMARY OF CASES TREATED IN THE PRESENT INVESTIGATION.

Diagnosis.	No. of cases.	Much improved or recovered.	Improved.	Slight or transitory improvement.	Not improved.
Manic Depressive Depressed	14	6	2	1	5
Manic Depressive Mixed	1	..	..	..	1
Involutional Melancholia	11	..	5	2	4
Schizophrenia	9	1	2	1	5
Psychoneurosis	3	1	..	1	1
Miscellaneous	3	..	1	..	2
Total	41	8	10	5	18

improvement was noted in three schizophrenics, and in one of the psychoneurotics, suggests that the cardinal indication for the use of hematoporphyrin lies in the presence of symptomatic depression rather than in the minute diagnosis.

The treatment is of two types, depending largely on the apparent severity of the case. In milder cases hematoporphyrin solution * is given by mouth, starting at 10 drops in water three times a day

* The solution used in these cases is supplied by the Nordmark Chemical Company under the trade name "Photodyn." It is said to be produced from horse blood according to the Nencki process and to contain in the oral solution 5 mgm. hematoporphyrin hydrochloride per c.c., and in the hypodermic solution 2 mgm. per c.c.

before meals, increasing by one drop each day until a maximum of 30 drops three times a day is given, then decreasing at the same rate until 10 drops three times a day is again reached, when the treatment is discontinued.

In the more severe cases hematoporphyrin solution is injected intramuscularly. A dose of ½ c. c. is given the first day, the 1 c. c. in two days, followed by eight more doses of 1 c. c. each on alternate days. After a rest period of about a week, the series is repeated, this time starting with 1 c. c. followed by nine doses of 2 c. c. at two-day intervals.

In some of the worst cases both methods were combined, or one followed by the other, as recommended by Huhnerfeld and followed without any material deviation by all other clinicians.

In the cases in which improvement took place, the change was noted very shortly after the institution of treatment. The depressive picture began to change usually within the first few days and, at most, within the first two weeks. In our experience if no favorable signs were observed in this time, the case did not benefit from the further exhibition of the drug, even in considerably increased dosage. This fact was specially brought out in two cases (Nos. 9 and 25) in which two series of treatments were given at an interval of several months, without results in either. Further, although we have been unable to follow the recovered or much improved cases after they left the hospital, we were able to study some of them for a period of several weeks and occasionally for several months after the termination of the medication, and in none of them did a relapse develop. While this observation accords with the opinion of many of the previous investigators it does not coincide with that of Klimke,[13] who felt that a continuous or repeated series of treatments was required to maintain the patient in a state of well-being.

In view of the warning of the earlier investigators, extreme care was taken at first to protect the cases from powerful, direct sunlight or ultraviolet radiation. Gradually, however, it was discovered that no unfavorable effects appeared in those exposed to the full summer sun and since then a number of cases have been irradiated artificially without any untoward results. It should be mentioned, however, that none of our cases were of the extremely fair complexion so well known to be especially sensitive to

light. It would be an interesting research for the future to study some such cases and to investigate in detail their response and that of others to carefully measured light exposure.

It may be further pointed out that no untoward effects were observed in any case during the treatment. There were no complaints of pain following injections, and no gastric or other somatic complaints from the cases treated by mouth. This is in strict accord with the findings of Hutschenreuter [22] that 20 times the maximum oral dose given to humans was tolerated by rats without significant symptoms, and while he also stated that the usual intramuscular dose did produce toxic effects, the difference in weight between the human being and the rat should establish a sufficient margin of safety.

The second object of the present investigation was to discover, if possible, the cause of the improvement in some cases and its failure to occur in others—in other words to find the method of action of hematoporphyrin. The superficial rationale of the treatment is, of course, obvious. As Huhnerfeld first pointed out, it is based on an analogy to the effects produced in animals, where it was observed that hematoporphyrin made ordinary docile animals restive, aggressive and quarrelsome. Since depressed human beings are inactive, sluggish and retarded, it was argued that by treating the symptoms, some improvement in the underlying condition might be achieved.

The purely empirical symptomatic treatment he evolved as a result of this hypothesis proved satisfactory and, as usual, several efforts have been made to find a more fundamental explanation of the effects observed. Huhnerfeld's original explanation, that the photodynamic substance somehow sensitized the whole system (especially the skin) to the effects of light, and that these effects were transmitted to the vegetative centres, causing increased activity, is still that most generally accepted for lack of something more definite.

With a view to investigating further the mode of hematoporphyrin, the cases reviewed in this paper were given a careful physical and physicochemical check-up before and after treatment. For obvious reasons it was not possible to get complete records on all, but in every case an effort was made to get not only a complete mental status, but a general physical survey and a laboratory work-

up including urinalysis, basal metabolism, blood chemistry, sugar tolerance and blood counts.

In Tables IV and V are shown the results in (a) a group showing no improvement, and (b) a group of improved cases. The urinalyses are omitted because they showed nothing of importance, and only a few sugar tolerance curves are inserted because of the lack of space. These curves obtained before treatment were in general similar to those reported by Katzenelbogen and Friedman-Buchman [15] and Strom-Olsen [16] in similar circumstances, but in the cases which improved high and slow falling sugar tolerance curves showed a tendency to a more normal configuration, while the same phenomenon in the unimproved cases either did not occur at all or to a much less degree. In some cases such as No. 12 they were higher after treatment than before it. All the post-treatment results given in the tables and sugar tolerance curves were taken at an interval of about two months after the first series.

Considering first the results recorded in Table IV which show the biochemical responses in a group of cases which did not improve clinically, it will be seen that there was in general a moderate improvement in weight (with the exception of Case 33), though the blood counts showed a decrease in both red and white cells rather than an increase, and this is also borne out in the hemoglobins. There was a very slight tendency for the non-protein nitrogen to increase while the blood sugar and calcium levels fell. The basal metabolism tended to be lower after the treatment than before it. Case 33 only was worse clinically following the medication. The others, while not improved, did not regress.

In the group of recovered or improved cases (Table V) on the other hand the weights showed little change, though in the whole series there was a slight increase, and while the white blood cells tended to decrease, the red cells increased, and the hemoglobins remained constant. The non-protein nitrogen showed a slight decrease, the calciums a more pronounced drop, and the sugars a definite fall. The basal metabolic rates rose moderately.

The cases recorded in detail in these two tables (IV and V) have been selected not because they are unusual in any particular, but because the findings in them are typical of those obtained in the whole group. While it would be presumptuous to attempt to draw any far-reaching conclusion from this comparatively small

TABLE IV.

Laboratory Findings—Unimproved Cases.

Case No.	Diagnosis.	Age.	Sex.	Weight.		Basal metab.		Blood chemistry.						Blood counts and hemoglobin.					
								N. P. N.		Sugar.		Calcium.		White cells.		Red cells.		Hemoglobin.	
				Before. Treatment.	After.	Before. Treatment.	After.	Before. Treatment.	After.	Before. Treatment.	After.	Before. Treatment.	After.	Before. Treatment.	After.	Before. Treatment.	After.	Before. Treatment.	After.
				Pounds.		Per cent.		Mg. per 100 c.c.		Mg. per 100 c.c.		Mg. per 100 c.c.		Thousands per c.mm.		Millions per c.mm.		Grams per 100 c.c.	
9	Manic Dep. Dep.	57	F	131	135	−7	+4	29.2	25.5	88.0	94.6	12.9	10.4	7.350	6.950	4.910	4.880	14.9	13.6
12	Manic Dep. Dep.	46	M	161	170	0	−5	31.9	30.4	94.6	105.4	9.8	9.8	6.700	5.950	5.932	5.290	15.6	14.1
13	Manic Dep. Dep.	48	F	106¾	106	−3	−5	30.9	27.7	110.6	101.6	10.8	10.9	7.300	5.700	4.730	4.520	13.9	13.9
21	Invol. Mel.	41	F	138	140	+12	+12	37.0	31.2	91.9	83.8	10.8	10.5	5.400	6.150	4.880	4.560	15.0	13.3
22	Invol. Mel.	47	F	106	113	+7	−4	25.2	24.8	83.3	91.9	10.9	10.0	8.900	5.500	4.810	4.620	13.2	14.9
23	Invol. Mel.	67	F	152	150	−20	−18	28.7	33.8	75.3	73.1	10.1	11.2	7.900	7.100	4.930	4.560	14.3	13.0
25[1]	Invol. Mel.	54	M	117	117	−14	−5	27.6	33.1	101.6	88.6	10.5	10.9	6.200	† . .	5.200	† . .	14.1	† . .
25[2]	Invol. Mel.	54	M	119	122	−5	−15	25.7	34.1	89.2	88.6	10.8	10.8	5.050	5.450	5.230	4.860	15.3	13.8
31	Schiz.—Paranoid.	39	M	175	173	+8	+2	28.8	28.7	85.0	91.2	† . .	11.1	9.250	8.050	5.350	4.740	15.5	15.6
33	Schiz.—Simple.	31	F	143	126	*+2	*−42	30.3	29.4	87.4	75.3	† . .	9.8	9.700	7.150	5.220	4.600	15.3	14.5
Average						−2.4	−3.8	29.5	29.9	90.7	89.4	10.8	10.5	7.375	6.444	5.119	4.736	14.7	14.1

* Because of the marked variation in the second reading, these results are not included in the averages.
† Tests not complete in these particulars.

TABLE V.

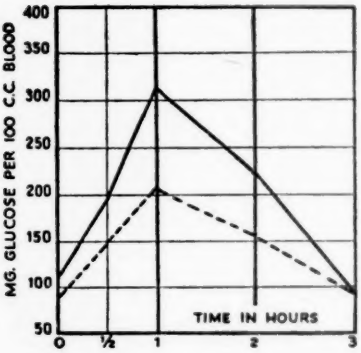
Laboratory Findings—Recovered and Improved Cases.

Case No.	Diagnosis.	Condition.	Age.	Sex.	Weight.		Basal metab.		Blood chemistry.						White counts and hemoglobin.					
									N. P. N.		Sugar.		Calcium.		White cells.		Red cells.		Hemoglobin.	
					Before.	After.	Before.	After.	Before.	After.	Before.	After.	Before.	After.	Before.	After.	Before.	After.	Before.	After.
					Treatment.		Treatment.		Treatment.		Treatment.		Treatment.		Treatment.		Treatment.		Treatment.	
					Pounds.		Per cent.		Mg. per 100 c.c.		Mg. per 100 c.c.		Mg. per 100 c.c.		Thousands per c.mm.		Millions per c.mm.		Grams per 100 c.c.	
2	Manic Dep. Dep.	Recovered.	34	F	106	104	−14	−4	34.1	30.9	81.1	82.7	10.2	7.4	7.350	7.100	4.460	4.700	11.5	14.3
3	Manic Dep. Dep.	Recovered.	38	F	137	135	−12	−10	28.9	31.1	82.7	90.5	11.7	10.5	5.150	4.300	4.510	4.030	14.6	12.8
6	Manic Dep. Dep.	Much Improved.	34	M	140	140	−10	−9	32.1	33.7	92.5	80.1	10.5	11.5	7.350	5.450	4.910	5.270	14.2	15.0
7	Manic Dep. Dep.	Improved.	44	M	131	128	−3	−8	27.2	35.2	96.8	88.1	10.3	11.0	8.150	6.500	4.780	5.370	14.8	14.3
16	Invol. Melan.	Improved.	57	M	117	119	*	*	36.8	25.1	109.6	80.6	11.6	11.0	7.100	6.700	5.390	5.012	13.9	12.5
Average							−7.8	−6.2	31.8	31.2	92.5	84.4	10.9	10.3	7.020	6.010	4.810	4.876	13.8	13.8

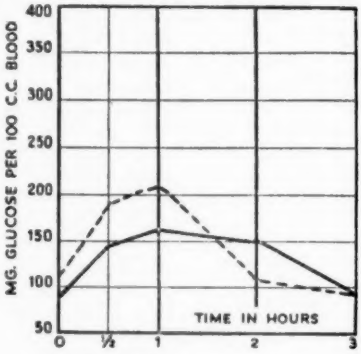
* Patient was uncooperative, so it was impossible to secure a satisfactory metabolism.

SUGAR TOLERANCE CURVES IN CASES WITH HEMATOPORPHYRIN.

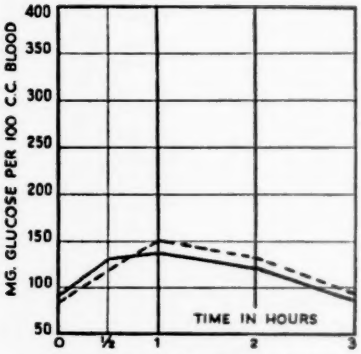
A. CASES CLINICALLY UNIMPROVED.



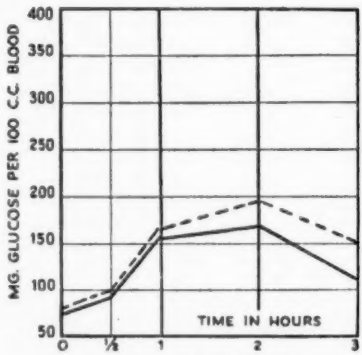
1. Case 12, Manic Depressive.



2. Case 13, Manic Depressive.



3. Case 25^2, Involutional Melancholia.



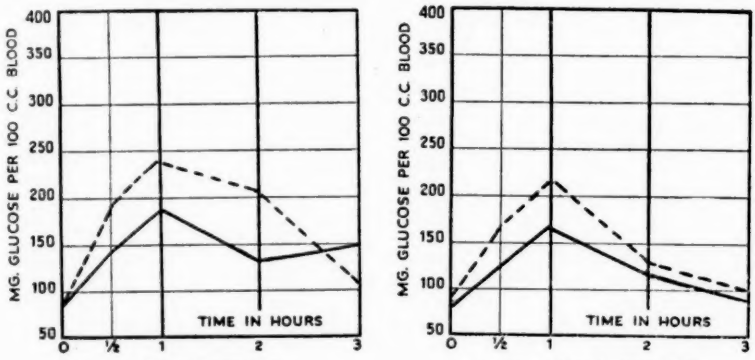
4. Case 23, Involutional Melancholia.

In all the above --- represents curve before treatment and —— curve after treatment. The various types of curve obtained are illustrated. In Cases 23 and 13 a high curve fell without clinical improvement, in Case 12 the curve after treatment is much more abnormal than that before, and in Case 25^2 both curves both before and after treatment were practically normal though a slight decrease in height is noted in the second curve.

number of cases, the presence of certain trends seems sufficiently definite to warrant further investigation and discussion.

Loss of weight is a textbook characteristic common to most forms of depression. While especially true of the involutional and manic-depressive cases, it is also common in schizophrenia, and not infrequent in agitated depression of organic origin and in the anxiety type of psychoneurosis. Our group of patients, however, having been under observation for a considerable period of time, had attained a fairly stable weight (with the one exception noted, one other schizophrenic and one organic case), and while this was

B. CASES RECOVERED OR MUCH IMPROVED.



5. Case 3, Manic Depressive. 6. Case 6, Manic Depressive.

As before the broken lines represent the curve before treatment and the solid lines the curve after it.

In both cases the high curves fell to a much more normal type. The rise in the 3-hour sugar in Case 3 is unexplained and is not a common occurrence.

usually much below that noted at the beginning of their psychosis, it was not continuing to fall at the time treatment was begun. The fact that no marked gain in weight did occur in the improved cases might be considered as evidence that the improvement noted was not deep-rooted, and yet the clinical benefits were unmistakable and several of these patients returned to their former occupations. If we omit the one case (No. 33) which was obviously rapidly becoming worse, and the other two specially mentioned above, it was apparent that most of the clinically unimproved cases did gain physically (the whole group gained 37 pounds during the period of study), a fact brought out especially by Strecker, Palmer and Braceland.[6]

The basal metabolism of depressed cases has been shown by Walker [17] to lie within normal limits (±10), as did most of ours. In schizophrenics he found a distinct fall which was especially apparent in our Case 33. Following the use of hematoporphyrin there was a tendency for the cases which improved to show higher rates, and those which did not improve to show a fall, yet there was a marked individual variation, and the average changes were well within normal limits.

The non-protein nitrogens showed variations so small that they are in all probability of little significance, yet the slight tendency of this constitutent to rise in unimproved cases suggests that kidney function tests might well be introduced into a further series.

The blood sugars of cases of depression have been shown by Katzenelbogen and Friedman-Buchman [15] to lie generally within normal physiological limits, as did all of ours. The same authors and also Drury and Farran-Ridge [18] and Mann,[19] however, found a distinct departure from normal in the type of sugar tolerance curves obtained, in that they were usually higher and fell more slowly than the normal. Drury and Farran-Ridge and Mann also showed in recovering cases that a return to a more normal type of curve was associated with an improvement in the general condition, and this finding was common to most of the cases in the present series. Nevertheless, while it was true that the improved cases showed more normal curves it was also true that the unimproved cases showed not infrequently a tendency in the same direction, but to a lesser degree. The whole question, therefore, would appear to be a matter of a relative change rather than an absolute one, making it difficult or even impossible to base a prognosis on this finding alone. The fall of the fasting blood sugar is more marked in the improved than in the unimproved cases, but in both, before and after treatment, the values lay within the limits usually considered normal.

The blood calciums present a somewhat different picture. Huhnerfeld [12] and Kuppers [5] maintain that it is definitely raised in depression; Katzenelbogen and Goldsmith [20] dealing with much larger series of cases, that it lies within normal limits (8.1-10.9 mg. per cent). Parhon and Werner [21] found the average value in the types of psychoses we are considering to be between 10.2 and 11.5 mg. per cent. In our cases the calcium fell with two

exceptions between outside levels of 9 to 12 mg. per 100 c. c. After a course of hematoporphyrin these values did decrease on the average in the improved cases from 10.9 mg. to 10.3 mg. and in the unimproved from 10.8 mg. to 10.5 mg. per 100 c. c., but were still within physiological limits. Strecker, Palmer and Braceland [6] found a similar fall in the one case they tested, Kuppers [5] and Huhnerfeld [12] noted a general decrease in several. The fact, however, that the decrease occurs whether the case shows clinical improvement or not, detracts considerably from its value as a prognostic factor.

The blood picture in depressive cases raises a more debatable point. There is a fairly general opinion that many if not most of these cases show some degree of secondary anemia, yet most of our cases showed a red and white count and hemoglobin of practically normal value. Huhnerfeld [12] believes that hematoporphyrin helps to build up the blood counts and hemoglobins where they are low, and that this change precedes the mental improvement. In our improved cases this change in the blood picture did occur in many instances though the reverse took place in Case 3. In our unimproved cases, however, a distinct fall in the hemoglobins and also in the red counts was rather the rule than the exception. Strecker, Palmer and Braceland [6] observed a similar occurrence in some of their cases, which if confirmed in future studies, would raise a question as to the hitherto unquestioned complete safety of the treatment.

Summarizing these results, it does not appear that there is any laboratory test of definite value in prognosis as to the success of the treatment, or that there is at present any satisfactory method of selecting cases which will benefit from the exhibition of hematoporphyrin from amongst those depressions in which it will be of no effect.

In attempting to explain the action of hematoporphyrin, Huhnerfeld [12] pointed out that the calcium level was definitely reduced and regarded this as an important indication that the treatment was not merely symptomatic but dealt with the more fundamental conditions which produce the mental depression. In this assumption he has been followed by Vinchon [10] in France and by Kuppers [5] in Germany. The present study, however, shows that while the calcium level is definitely lowered under hematoporphyrin treat-

ment, this decrease is not necessarily accompanied by any clinical improvement, nor are the blood calciums of depressions especially high. In one case (No. 9) where the calcium was above the accepted clinical average value (it was 12.8 mg. per 100 c. c.), it was reduced under hematoporphyrin treatment (to a level of 11.5 mg. per 100 c. c.) with only a very transient clinical improvement; and though the drug therapy was continued the patient did not improve. Whatever may be the significance of this type of finding, it does not seem to indicate any very close relationship between the calcium level and the clinical picture. In this connection Kuppers [5] points out that not only the calcium but also the potassium and the blood sugar levels must be reduced before improvement can be regarded as probable. Another explanation advanced by Boyd [14] involves the possibility that hematoporphyrin by absorbing light energy becomes unstable, breaks down, and passes over part of its energy to the protein. Up to the present no definite confirmative evidence has been offered for these hypotheses, but the researches of Hutschenreuter [22] in animals seem to indicate that hematoporphyrin given by mouth appears in the feces in amounts proportional to the amounts given, and hence that it undergoes little if any decomposition in its passage through the body, suggesting that it acts rather as a catalyst than as a reagent. Obviously the method of action of hematoporphyrin is as yet unsettled and in the present uncertainty, further investigation is indicated in the light of the accumulating clinical evidence that it is of definite benefit in the depressive psychoses.

SUMMARY.

1. Forty-one cases of which depression was an outstanding symptom have been treated with hematoporphyrin, with laboratory controls. All the cases were under hospital care; by far the majority of long standing; and many had had previous courses of treatment of various types without any improvement.

2. Of this series 14 were manic-depressives of the depressed type, 1 manic-depressive mixed, 11 involutional melancholias, 9 schizophrenics, 3 psychoneurotics and 3 miscellaneous with some organic factors.

3. Six of the manic-depressives, 1 schizophrenic and 1 psychoneurotic recovered or were much improved; of the balance 10 were improved, 5 showed slight improvement, and 18 were unaffected.

4. In all cases improved and unaffected, the blood calcium level and the blood sugar level fell, though all these occurred to a more marked degree in the former group. The sugar tolerance curves fell in the improved group and to a less degree in some of the unimproved cases, though it remained constant or even rose in some of the latter. The improved cases showed a slight loss of weight or at most a very slight gain, while in the unimproved cases the weight in general definitely increased. The basal metabolic rate increased slightly in the improved cases, but in the majority of all cases was within normal limits. The N. P. N. increased very slightly in the cases which did not improve, but fell correspondingly little in those cases which recovered or were improved. There was a general tendency in all cases to a decreased white blood count. In the improved cases the red counts increased, while it fell in the group which remained stationary; the hemoglobin value was unchanged in the former and fell in the latter.

CONCLUSIONS.

1. No satisfactory explanation based on experimental evidence of the action of hematoporphyrin has yet been evolved.

2. The laboratory tests are of little if any value in selecting cases for treatment or gauging their progress under treatment.

a. The blood calcium is reduced by the drug whether the case be clinically improved or not, but both before and after treatment is usually within normal limits.

b. The blood sugar tolerance curves assume a more normal configuration after treatment than before it. The blood sugar falls during treatment, but is within normal limits before and after it.

c. The blood picture is not characteristically affected. The white counts usually fall in all cases, but the red count and hemoglobin falls in clinically unimproved cases and rises or remains unchanged in treated improved cases.

3. The weight remains unchanged or improved under treatment. In only three cases was continued marked fall apparent.

4. No toxic effects were observed, and as far as the present series shows there is no danger of skin reaction from exposure to light.

5. With one exception, no clinically unfavorable sequels to treatment appeared.

6. Improvement, if it does occur, takes place early in the course of treatment. If one course fails, later series, even in much increased dosage, are not successful.

7. In our cases clinical improvement established during a course of hematoporphyrin treatment appears to be maintained or continues after the drug is withdrawn.

8. Taking into consideration the unfavorable outlook of many of the cases treated and the fact that many had had previous unsuccessful therapy, it would seem that hematoporphyrin is of definite value in the treatment of symptomatic depressions. While the results are unquestionably better in the milder cases, the method has proved of very positive benefit in certain cases of apparently malignant character, and would seem to be well worthy of trial in any case in which depression is an outstanding symptom.

NOTE.—The writer desires to take this opportunity to express his thanks to Dr. C. C. Burlingame, Psychiatrist-in-Chief of the Neuro-Psychiatric Institute, for his helpful criticism in the preparation of this paper. Without his friendly assistance the research could not have been undertaken, nor presented in this form.

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DISCUSSION.

DR. ROBERT B. MCGRAW (New York City).—Anything that gives promise in the matter of treatment of the manic-depressive reaction is of value because it seems pretty evident that this symptom complex is one of the most resistive and elusive in psychiatry. By the results in all our symptomatic depressions I feel that we cannot be very much impressed as so many things seem to turn the scale toward recovery. One patient who was apparently very much benefited by hematoporphyrin retained some symptoms, among them sleeplessness, and this same patient was cured by lactose capsules.

This medication, hematoporphyrin, should be used in hospitals where the same patients are coming or have been seen in several attacks, and it should be used the second or the third time. I have had opportunities of using it the second time in one patient and whereas there seemed to be improvement the first time there was no improvement the second time. The influence of suggestion seems to be not a small one apparently.

In private practice it is a rarity to see patients of the recurrent type in several attacks. I think it is a rarity to see them in private institutions; they go somewhere else, they go to some other doctor and they have a new type of treatment each time. In the state institutions, however, they come back to the same hospital because they have to come back.

If this drug is useful in the subsequent attacks, it is more important evidence I think, of its value.

To emphasize the influence of suggestion, I have a patient whom I have seen in six or seven different attacks. He had them pretty regularly every 15 or 16 months. He missed a manic attack in 1929. He is in a stock exchange position. This year he is apparently missing another attack and he has had to assume greater responsibility. Therefore, I wish to emphasize that fortuitous and spectacular occurrences in the environment sometimes seem to change the pattern considerably.

It is noteworthy in this particular study that the metabolic and physiologic studies were made because certainly in the clear-cut so-called typical affective reaction types the physiological component is pretty important it seems. Some of these people can be called, and are called by the internist, essential hypertensives. They often die of vascular accidents, of coronary or cerebral occlusion or thrombosis.

I would suggest that blood pressure studies as a simple measure might be useful in studying the effect of the hematoporphyrin and in studying the total effect on the reaction.

My own results in the use of hematoporphyrin on a smaller series has not been as satisfactory as has been noted in any of the studies given. I have mentioned one or two. I think, however, that the use of the substance should be continued, in order that we may build up a body of knowledge about its action. It might also perhaps be useful to use this same substance in the manic cases as a control.

Dr. Charles F. Read (Elgin, Ill.).—In the therapy of these depressions, as the other discussants have said, we clutch at straws and for that reason, and with considerable apologies to ourselves, we have undertaken the treatment of a group of such cases at Elgin with hematoporphyrin. In the case of treatment of this kind perhaps it is just as well to accumulate evidence of the cases treated.

Our series has not been analyzed as yet. It amounts to 12 or 15 cases. We undertook the treatment with no hope of obtaining any results. We obtained no results in the first 10 treated and we were then pleasantly surprised by the improvement of three cases in which we had looked for none.* One of these to be sure was manic, but with the decided involutional coloring, who had gone on with her psychosis for about a year. One case

* November 20, 1935: "The cases of improvement later relapsed and we have definitely concluded, from our experience, that hematoporphyrin treatment is useless."

had lain for months in a ball, as it were, under the sheets of her bed and she is now up and in contact. The other two are improved.

Our examinations, blood chemistry and blood counts, have revealed nothing of importance to our minds. We have found no decided fall in the calcium; some fall in the sugar; no particular change in blood count.

DR. HAROLD D. PALMER (Philadelphia, Pa.).—We have been very much interested in the study of the effects of hematoporphyrin in the psychoses. I think we have treated slightly more than 100 cases up to the present time, but certain questions have arisen in my mind in listening to Dr. Angus this morning.

Dr. Angus, have you made any attempt to test out the photosensitizing power of this commercial product on laboratory animals? Do we know, for example, that this product we are using is a photodynamic substance? Does it sensitize experimental animals and do we know that it sensitizes our human patients to light? Is there a therapeutic effect due to the photosensitization produced by the hematoporphyrin? Is it not possible that since hematoporphyrin promotes the cellular perspiration or the oxygen uptake of the cells that the effect might be just as efficient without light exposure?

Did any of your patients suffer from photophobia? After all, the most photosensitive tissue in the body, the retina, might be the first to show a photosensitized effect. I might say that in a number of our cases we did produce photophobia, particularly in blonde or auburn haired individuals. I am wondering if you had the same experience.

Fourth, was there any specific evidence of improvement with the drug which was followed by loss of the clinical gains after withdrawal of the drug? That is, did any patient make an improvement for a 10-day period with the drug, then was it withdrawn and did the patient show rapid decline? When the drug was resumed did the patient rapidly improve again? Did any patient decline again after the drug was finally withdrawn at the end of what was thought to be a full course of treatment?

DR. LESLIE R. ANGUS.—First, I shall try to answer some of Dr. Palmer's questions. To take up the last one first: were there any cases in which photodyn was given to the patients and they improved, but the improvement stopped when the photodyn was discontinued? We did have one or two such cases. That, frankly, was very uncommon. Most of them when they did show an improvement continued to maintain that improvement when the photodyn was stopped.

Replying to the next question, none of our patients suffered from photophobia. Of course we did not have the unusually light-haired individuals of whom Dr. Palmer spoke. We did not have any who complained of photophobia and we did not observe any sensitizing effect on the skin.

The first and second questions as to whether the commercial product has a photosensitizing power and as to whether the response on the part of the patient is due to the light effect are points far from settled. Certainly

as far as our investigations go there does not seem to be any special indication that the light has a great deal to do with recovery, although, of course, that is what Huhnerfeld's original statements were, and as I remember in some of the cases that Dr. Palmer reported earlier it did seem to have quite a distinct effect.

I do not know whether the commercial product is photosensitive or not, but I do know that it is hematoporphyrin. An independent analysis has established this fact, so that presumably photodyn has the general properties of hematoporphyrin, including photosensitivity.

I think the point that one of the other discussants brought up that a great many other people have been trying to use this drug and have had negative results is quite true. It is true, of course, of any new form of therapy. I think it would be a very excellent thing to collect all the results, both good and bad, and sum them up together with as careful laboratory controls of all types as we can get.

The suggestion that blood pressure studies be incorporated, I think, is a good one.

The problem that Dr. McGraw brought up about the possibility of using this drug in manic cases is one that we have thought of very frequently indeed. We have never actually done it merely because we have not had the time. If the manic-depressive group are one, as we believe, whether they are depressed or excited, then this should produce benefits in the manic cases likewise.

We have not treated any recurrent attacks and when I said that repeated courses had no effect, or that giving a second series later had no effect, I did not mean it to apply to a recurrent attack. I did mean that if photodyn were given in one attack with no improvement, and then after a period of months (in one case nearly a year and in all the cases more than three or four months) a second course were given in the same attack, the second series apparently produced no effect whatsoever.

HEMATOPORPHYRIN TREATMENT OF SEVERE DEPRESSIONS.*

By D. LOUIS STEINBERG, M. D., Elgin, Ill.

The use of hematoporphyrin as a therapeutic agent in the treatment of depressions—involutional melancholia, manic-depressive-depressed phase and endogenous depression—was first instituted by Huhnerfeld [7] and reported by him. Subsequently, other investigators have used this form of therapy, the majority reporting favorably. It is only within the last two years that there have crept into the literature reports that do not coincide with the findings of the earlier workers in this field.

Hematoporphyrin (trade name—photodyne) is a decomposition product of the hemoglobin normally present in the blood stream in small quantities. If increased through disease or chemical poison it becomes very toxic. It is excreted by the body through the urine and feces. It is prepared commercially from the blood of the horse.

Strecker and Palmer [12] have called attention to the fact that the literature contains 24 cases of acute hematoporphyria and that the symptoms presented were those of acute ascending paralysis (Landry) and mental symptoms in the form of visual and auditory hallucinosis. They have also called attention to the fact that Garrod and Templeton and Lunsford have noted that there is some difference between the photosensitizing effects of the artificial and the endogenous hematoporphyrin.

THEORY.

The theory for the action of this chemical is very vague and some of the workers disagree upon the exact mechanism of its action.

According to European investigators, hematoporphyrin sensitizes the tissues to light and thus conveys stimuli to the vegetative nervous system. Through the sympathetic centers there is then produced an elevation of spirits and release from inhibitory ten-

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sions, thus overcoming the supposed diminished neuromuscular irritability which has been noted in the endogenous depression.

According to Boyd,[3] when oxygen is present and united with the hematoporphyrin molecules, it oxidizes them and passes its energy over to them. The hematoporphyrin molecule thus becomes unstable and decomposes. Regarding the exact steps from here to the apparent therapeutic action, no reasonable explanation has ever been offered.

LITERATURE.

Both Hausmann [6] and Huhnerfeld,[7] working independently with rats, mice, rabbits and pigs, reported an increase in the liveliness of the animals and in their responses to stimuli following injection of small amounts of hematoporphyrin. They also reported that the animals showed a marked gain in weight, following the use of the drug in small doses. Huhnerfeld,[7] working with pigs, showed that the calcium level in the blood was reduced during the time of medication.

This experimental work was thus transferred for a trial to human beings. It was first used by Huhnerfeld [7] in 13 cases of depression. Excellent results were obtained in 11 cases; 2 showed no change. Since then there has been reported in the literature a total of 141 cases—by Huhnerfeld,[7] Becker,[2] Hartman and Weissman,[5] Vinchon and Bourgeios,[13] Vinchon and Kueppers,[9] Strecker and Palmer,[12] Giehm,[4] Notkin *et al* [11] and Angus.[1] The psychoses of the patients treated included mild depressions, manic-depressive-depressed phase, psychasthenia with depression, involutional melancholia, epilepsy with depression, mild schizophrenia and dementia præcox.

Of course, in evaluating therapy it is difficult to form definite standards of what is meant by improvement, especially when summarizing the reports of different workers. Therefore, adhering to the descriptions of the various investigators, we subdivided the total group of 141 into improved, partially improved and unchanged, and found that 71 patients were considered improved, 22 partially improved and 58 showed no change. In the last named group are found predominantly the schizophrenic and dementia præcox cases. Such a classification is subject to considerable error, but we believe that roughly it represents the opinion of the various workers, that is, that hematoporphyrin has a definite beneficial

effect in the depressive psychoses. It has also been reported that changes are produced in the blood calcium, potassium, phosphorus and the blood cell picture.

Only recently a report striking a decidedly unfavorable note, contrary to the almost unanimous approval of previous investigators, has appeared. This is the report of Notkin *et al*,[11] who treated 10 cases of involutional melancholia and 10 cases of dementia præcox and who also obtained laboratory check-up of B. M. R. and blood counts. Only one case in the entire group of involutional melancholia showed any considerable clinical improvement; three showed a mild transitory improvement and the other six none at all. None of the dementia præcox patients showed any improvement. Slight variations of weight were noted in both the involutional melancholia and dementia præcox groups. Insignificant changes were noted in the B. M. R. values. Improvement of the blood picture was noted at the end of treatment in the involutional melancholia patients. Another dissenting report is that of Angus[1] who found that the clinical results obtained in the treatment of patients with hematoporphyrin were not as impressive as those of earlier investigators and that equally beneficial results were obtained with other forms of treatment. The results of his laboratory check-ups, however, were fully in accord with those of previous workers.

CLINICAL STUDIES.

In view of the favorable reports, we decided to make use of hematoporphyrin therapy in the treatment of our depressed patients, especially in the involutional melancholia and manic-depressive-depressed patients. The patients selected comprised five diagnosed involutional melancholia, eight manic-depressives and one undiagnosed psychosis. There were 11 women and three men, the number of patients having necessarily been limited because of the high cost of hematoporphyrin as compared with that of other medications. They all had in common a severe depression with marked depressive ideation. Some of the cases diagnosed manic-depressive had had previous attacks from which they apparently had recovered. The age range was from 35 to 59; the duration of the psychosis from 3 to 30 months prior to starting hematoporphyrin therapy. All contraindications were ruled out. A perusal of the

case reports to follow will acquaint one with the peculiar symptomatology of each case. Here again the question of diagnosis enters into the evaluation of results. However, the diagnoses here given do not represent the opinion of one examiner. All these patients had been presented before the medical staff whose psychiatric experience ranges from 4 to 25 years of active practice. Usually from 4 to 10 opinions are expressed. The majority of concurrences determines the final diagnosis. Regardless of the diagnosis, these patients were chosen because their symptomatology and physical condition placed them in the group which resembled most closely the type of patients that had been reported as most greatly benefited by the use of this special form of medication—hematoporphyrin.

In all our cases we attempted to follow closely the accepted procedures of the various workers in this field. We administered the medication both by intramuscular injection and orally. A course of injection therapy consisted of 10 injections of 1 c. c. of hematoporphyrin (2 mg.) given every other day for 20 days, then a rest period ranging from 8 to 28 days, the majority being 14 days, during which time the patient received oral medication, 10 to 15 gtts. t. i. d. and finally another course of 10 injections of 2 c. c. given every other day for a period of 20 days. As this drug is supposed to be efficacious when administered orally, we gave patients 4 and 8 medications by mouth only starting with 15 gtts. t. i. d., increasing 1 gtt. daily until patient received 30 gtts. t. i. d., then decreasing by 1 gtt. daily until the patient was again receiving 15 gtts. t. i. d. and then kept at this level for 14 days more, giving the patient a total of 45 days of therapy. Patients 1, 3, 4, 7 and 8 had a second complete course of therapy. Each patient received what is generally considered an adequate amount of therapy and patients 1, 3, 4 and 7 received in addition small doses of tincture opii while patients received ultra-violet exposures simultaneously with the administration of hematoporphyrin. Patients 1, 2, 3, 4, 5, 6, 7 and 8 were housed together in one cottage so that at least for these patients the external conditions under our control were equalized.

At the same time we decided to check some of the laboratory changes that are supposed to be induced by the use of this drug, mainly changes in the blood electrolytes such as calcium and the

blood count. In addition, samples of blood of the first 8 patients in our series were submitted to the ultra-microscopic examination before and after treatment according to the method of McDonough.

The clinical results of the hematoporphyrin treatment of the 14 patients are summarized in the attached case histories; the laboratory findings are given in Tables I and II.

TABLE I. BLOOD CHEMISTRY CHANGES IN 8 PATIENTS.

B. Before Treatment Was Instituted.
A. After Treatment Was Discontinued.

Case No.	Blood Chemistry. Calcium. Mgm./100 c. c.		Blood Sugar. Mgm./100 c. c.		N.P.N. Mgm./100 c. c.		Cholesterol. Mgm./100 c. c.	
	B	A	B	A	B	A	B	A
1	11.03	11.0	71.43	94.3	29.6	26.6	....	....
2	12.9	11.5	88.8	74.0	....	....	240.	220.
3	11.9	11.3	81.63	86.9	32.9	29.1	....	....
4	11.05	10.6	105.26	79.0	35.3	35.6	233.	160.
5	10.6	11.12	78.5	100.	37.5	30.4	200.	160.
6	11.0	....	83.3	88.8	28.6	40.3	195.5	188.6
7	10.15	10.9	66.66	62.5	32.2	43.0	173.3	110.
8	11.9	12.5	71.21	74.0	28.1	34.0	167.5	150.8

TABLE II. BLOOD CELL CHANGE IN 5 TREATMENT CASES.

B. Before Treatment.
A. After Treatment.

Case No.		Blood Count. Red Cells.	White Cells.	Hb.	Seg.	Stab.	Lymp.	Eosin.	Mono.	Baso.
1....	B	3,500,000	7,000	85	55	1	43	1	..	..
	A	3,400,000	5,800	66	59	2	35	..	4	..
4....	B	4,700,000	11,400	90	64	4	30	..	2	..
	A	4,000,000	8,950	81	76	1	21	..	1	..
5....	B	4,300,000	6,400	91	57	1	42	..	..	..
	A	3,700,000	9,200	92	56	2	42	..	..	..
6....	B	4,500,000	5,000	95	53	1	42	1	1	2
	A	4,600,000	6,800	91	67	2	30	1	..	..
8....	B	4,350,000	7,600	88	64	2	34	..	..	..
	A	3,000,000	8,800	89	64	0	32	..	..	2

Of the 14 patients treated for periods ranging from three to six months, only one case [4] showed improvement in both her physical and mental spheres. The duration of this improvement was about

six weeks when coincidentally with the development of a pleurisy with effusion, the patient soon regressed to her pre-therapeutic level. Another patient,[9] diagnosed manic-depressive, showed a gradual improvement after photodyne therapy had been discontinued. She continued to adjust on a low level in the institution and occasionally would revert to behavior typical of her condition at the time of admission. It is doubtful whether we can attribute even these temporary and sporadic improvements to the photodyne treatment since in one instance (Case 4), the patient, diagnosed involutional melancholia, had made during a previous hospitalization a similar improvement but of much longer duration, and in the second instance the intermittent improvements did not coincide with the hematoporphyrin treatment. In fact, even adverse effects were noticed—in some of the remaining 12 cases the original pathological manifestations seemed to be intensified. Notkin[11] observed similar adverse effects in some of the patients in his series.

Kueppers[9] published very interesting chemistry changes in the blood following hematoporphyrin therapy. Referring to Table I, it is interesting to note that our calcium readings before treatment are far below the level of those obtained by Kueppers. We used the method of Tisdall. A comparison of the before and after readings readily shows the slight changes produced and their ambivalent trend. Patients 11, 12 and 14 which are not charted gave similar results and in Case 13 an original reading of 6.76 mg. was raised to 9.58 mgs. at the completion of therapy. Cases 9 and 10 had no check-up following therapy.

Again referring to Table I, we note that the blood sugar and N. P. N. levels show similar indeterminate results. It is only in the cholesterol level that we note any agreement in a tendency to a lower level following therapy. In view of these findings, we are forced to conclude that in our experience calcium, sugar and N. P. N. levels in the blood are not equally responsive in all patients and do not follow the trends reported by other workers; and that only in blood cholesterol is there observed a definite trend to a lower level.

The influence of photodyne on the blood cell picture has also been noted by several investigators. We obtained blood counts for the first eight patients. The values for patients 2, 3 and 7 are omitted from Table II because readings were not made at termination of treatment. Inspection of Table II shows that there are

four instances where the red count was lowered and one instance of slight elevation following treatment and two instances where the white count showed lower readings and three where it showed increases. Thus again our findings fail to corroborate the almost uniform findings of previous investigators. None of the patients where McDonough blood examinations were made showed any striking changes in the before and after studies.

In none of these patients, with the exception of Case 7, did we observe at any time symptoms of toxicity that we considered definitely associated with the administration of photodyne. Following her first course of 10 injections and the oral therapy, Case 7 developed an extensive furunculosis of the skin. Therapy was therefore discontinued, following which the skin infection cleared up. After a short rest period, this patient was again started on photodyne and completed an entire course without any further sign of toxic reaction.

It is quite evident that our experience with hematoporphyrin treatment in the depressed psychoses has not revealed nor even suggested beneficial clinical or somatic results. We can not ascribe to it any special benefits to the patients in either the physical or psychic fields. Our laboratory check-up is indicative of no special or specific influence exerted on the blood electrolyte or the blood count. We, therefore, have discontinued using the drug until further bio-chemical investigation reveals a more definite indication for its use than vague theories, or suggests new clues as to its nature which will warrant its use on empirical grounds.

COMMENT.

The theory and experimental work have been discussed by nearly every one who has reported on the use of hematoporphyrin, and since there has been no new development no further comment is necessary.

It is of interest though to note that our cases were all of severe depression—both the manic-depressive and the involutional melancholia patients, and as Giehm [4] pointed out, "photodyn seemed to be of no value in cases of melancholia where fear was a prominent symptom," but in contradiction to this conclusion Becker [2] states "that in true endogenous depressions photodyne seems never to fail." Strecker and Palmer [12] cite as one of the more specific

evidences of the therapeutic value of hematoporphyrin the fact "that in a large number of patients prompt improvement occurred during the first course of treatment, but when the drug was stopped . . . . a definite decline was evident," and that "prompt improvement again was obvious when treatment was resumed." They note also that the most satisfactory gains were obtained in the benign unhospitalized depressed patients, and they mention the possibility of suggestion as a factor.

Another reported evidence of beneficial influence is a gain in weight and changes in the blood electrolyte values.

It is again quite evident that our own experience with this drug failed to produce in patients of severe depressions any of the above signs of therapeutic value, and therefore we must conclude that photodyne therapy is not indicated in the severe depressive psychoses and that in some cases it is definitely contra-indicated because of its apparent ability to aggravate the symptomatology presented by the patient.

SUMMARY.

1. Reports in the literature of the use of hematoporphyrin in the depressed psychoses were for the most part favorable.

2. There are by no means clear theories as to the physiological action of the drug.

3. Experiments with laboratory animals indicated a definite influence on the weight and an increased response to stimuli.

4. Laboratory studies had shown a tendency of the drug to elevate the blood count and to reduce the calcium level.

5. Fourteen patients in all were treated adequately with hematoporphyrin.

6. Two patients responded well, one of whom relapsed after a period of six weeks. The other continued to adjust on a low level.

7. Laboratory examinations failed to disclose any specific influence on the blood picture except a tendency to lowered cholesterol levels.

8. Our results do not warrant the use of this therapy in preference to any of the old armamentarium used in the treatment of depressed psychoses.

9. The use of this drug did not produce any deleterious toxic reaction.

CASE SUMMARIES.

1. Age 53. Hysterectomy in 1928; thyroidectomy in 1930. Mental symptoms began June 1933; thought she was infected and had infected her son; depressed, resistive, tube fed, usually mute. On admission condition unchanged; marked hypertension; considerable treatment without success. Diagnosed involutional melancholia. Photodyn therapy begun December 31, 1934, received one complete course of injection therapy along with tincture opii and simultaneous exposure to ultra-violet ray. No change whatever in behaviour. Laboratory examination—sedimentation rate rapid; no change in refractive index or viscosity, or ultramicroscopic picture of protein particles.

Conclusions.—Treatment adequate and without noticeable effect, physically or mentally.

2. Age 35. Manic-depressive. Present attack began November 1934 with bizarre behaviour, apprehension, depression, impulsiveness and negativism. She was undernourished, hyperactive and violent. Therapy begun April 1, 1935, completed May 29—one complete course of injection therapy. She became more catatonic like; in the course of treatment began to talk, but in a scattered, delusional manner. Laboratory examinations of urine were negative. Sedimentation at close of treatment was delayed; refractive index remained constant and the ultramicroscopic picture unchanged.

Conclusions.—This may be a case of mistaken diagnosis, possibly catatonia rather than manic-depressive. Treatment was without any appreciable effect aside from slight, insignificant changes in blood chemistry.

3. Age 40. Onset 3 weeks before admission in October 1934; began to talk about having sinned, seemed perplexed, depressed, resistive and seclusive. Diagnosis not made. Continued to express ideas that she had sinned. Photodyn therapy started December 1934; 10 injections 1 c.c. and 15 drops t. i. d. by mouth for 2 weeks. She was then placed in bed because of edema of the feet and continued to be depressed, retarded and untidy. A full course of therapy begun March 11 was completed May 6—tincture opii also given. At the end of the course she seemed very slightly improved. Laboratory studies—urine negative; sedimentation remained delayed; refractive index and viscosity showed no changes and the ultramicroscopic picture unchanged.

Conclusions.—Treatment was adequate and no beneficial effect was noted either mentally or physically.

4. Age 59. First admission September 4, 1931. Diagnosis—involutional melancholia. Discharged improved March 1932. Returned April 1934—showed restlessness, purposeless activity. Diagnosed manic-depressive psychosis, mixed type. Received considerable therapy without manifesting any change in mental picture. Patient started on photodyne therapy January 9, 1935—one complete course of oral therapy; completed February 22, 1935, received ultra-violet exposure daily during photodyn therapy. Patient improved; decrease in depression, agitation, cooperated with ward routine; although still complained of feeling an urge to be doing things, she neverthe-

less controlled this. Had good insight and gained weight. Patient started on another course of photodyn therapy on March 11, 1935, same as above, and completed April 24. On April 8, patient developed left sided pleurisy with effusion and coincidentally began to regress and at end of photodyn therapy patient was about the same as in January. Laboratory examination—no change in urine; sedimentation rate rapid; no change in refractive index, viscosity or in ultramicroscopic picture of protein particles.

Conclusions.—Treatment adequate, improved mentally and physically for period of 6 weeks, then returned to former level.

5. Age 46. Mental symptoms noted June 1934; somatic delusions, depression, restlessness and hopelessness; admitted September 1934—apprehensive, had ideas of sin, marked loss of weight, had to be force-fed, showed some tension. Diagnosed involutional melancholia. Patient had considerable therapy with no change occurring. Photodyn therapy begun April 1, 1935—one complete course of injection therapy; completed May 29, 1935. Received ultraviolet exposure daily simultaneously with therapy. Mental picture remained the same; lost weight. Sedimentation rate, refractive index, viscosity, ultramicroscopic picture of protein particle showed no change.

Conclusions.—Treatment adequate without any beneficial influence on mental or physical status.

6. Age 44. Tainted heredity; mental symptoms noted in 1933; January 1934 attempted suicide, was agitated, killed a pet canary; admitted September 21, 1934; showed indecision, perplexity, retardation, somatic complaints and was a feeding problem. Diagnosed involutional melancholia. Had considerable therapy with no effect. Started on photodyn therapy April 1, 1935— received one complete course of injection therapy and ultra-violet exposure simultaneously daily during the course. Sedimentation rate, refractive index, viscosity and ultra-microscopic picture showed no change.

Conclusions.—Treatment adequate with no beneficial effect on mental or physical status.

7. Age 53. Twenty years ago had depressed period, recovered after 2 years. Present mental symptoms occurred in 1933; agitated, depressed, expressed the idea of doing wrong, considerable tension. Admitted October 10, 1934. Diagnosed manic-depressive, mixed phase. Physically was poorly nourished and a feeding problem. Had considerable therapy with no improvement. Started on photodyn therapy Decemeber 2, 1934—10 injections intramuscularly of 1 c.c. each, then 15 drops t.i.d. for 2 weeks and then 2 injections of 2 c.c. each. Therapy was discontinued because of multiple furunculosis, January 9, 1935. Started on treatment again March 4—completed an entire course of oral therapy on April 18, 1935; received small doses of tincture opii and ultraviolet exposure at same time. Laboratory examination showed no change in urine and no appreciable change in sedimentation rate, refractive index, viscosity and ultramicroscopic picture of protein particles.

Conclusions.—Therapy was adequate but no indication of any beneficial effect on mental or physical status.

8. Age 45. First admitted in 1925, restless, removed her clothes, combative, out of contact. Diagnosed dementia praecox, hebephrenic type; discharged improved February 1926. Adjusted fairly well except for mild depressed periods at yearly intervals. In September 1933, patient became restless, refused to eat, careless of appearance, cried, hallucinated, was somewhat fearful, and expressed the idea that she was being blamed for everything. For most part patient has been in bed since then. Had to be spoon fed. Diagnosed manic-depressive, mixed type. Photodyn therapy begun January 8, 1935—received two complete courses of oral therapy up to April 24, 1935, also ultra violet exposure daily. Lost weight. No change noted in sedimentation rate, refractive index, viscosity and ultramicroscopic picture.

Conclusions.—No influence of therapy was noted on mental or physical status of the patient.

9. Age 45. Admitted September 5, 1934; had short period of depression 16 years ago following birth of her first child, from which she recovered in 3 weeks. At that time threatened suicide. Present attack started March 1934 following an injury to her face, characterized by self-accusatory ideas, depression and agitation. Menopause 6 months before admission. On admission patient was very depressed, retarded, said she was in the hands of the devil. Diagnosed manic-depresive, depressed. Frequently lay on the floor or slumped on a bench or in a chair; was untidy in personal habits. At the time photodyn therapy was instituted mental condition was poor. Received one complete course of injection therapy; completed this on April 10, 1935.

Conclusions.—Following completion of this course patient began to improve and at the present time is more alert, tidy in habits, exhibits more spontaneity and is interested in her appearance.

10. Age 54. Diagnosed involutional melancholia. First mental symptoms noted September 1933; complained of insomnia, expressed the idea that she had done wrong, thought the family was going to be killed, made several attempts at suicide, taken to a private sanitarium, began to eat poorly and refused to recognize the family. Here she was depressed and expressed the idea that she was to be killed and had a hopeless outlook. Patient was started on photodyn therapy December 29, 1934—received one complete course of injection therapy by February 21, 1935.

Conclusions.—Treatment was adequate. This patient showed no marked change following therapy excepting that she was more responsive to questions.

11. Age 55. Diagnosed manic-depressive psychosis, depressed phase; onset of mental disease was in 1932. Patient began to express the idea that someone was talking to her, threatening her, had crying spells, became careless of her personal appearance and slept poorly. Here she had a moderate hypertension, was depressed, retarded, showed some defects in memory and threatened suicide. Patient was started on photodyn therapy December 29, 1934—received one complete course of injection therapy. This was completed February 23,

1935. Laboratory examination showed a blood calcium of 11.05 before treatment and 11.1 at completion of the course.

Conclusions.—Adequate treatment. There was no change in patient's mental or physical status or blood calcium.

12. Diagnosed manic-depressive, depressed phase. First attack noted in 1920, lasted 2 months. Was depressed, talked very little, lost interest in her surroundings, not hospitalized at that time. Second attack in 1930. This time in addition to the above symptoms had some mild self-accusatory ideas, ate poorly. In 1932, patient had a third attack; similar symptoms; has been hospitalized since then. Patient started on photodyn therapy on January 22, 1935; completed April 3, 1935—received one complete course of injection therapy. Laboratory examination showed blood calcium 11.39 before treatment; 10.1 at completion of treatment.

Conclusions.—Treatment was adequate; no change in physical or mental status was noted; a decrease in blood calcium was effected.

13. Age 54. Diagnosed involutional melancholia; first mental symptoms noted in October 1932; patient had somatic complaints, was depressed, restless, had ideas his family was against him, would cry easily, attempted suicide and was committed here December 17, 1932. Patient was paroled April 1933, made a good adjustment until August 1933, when he again began to worry and began to express ideas of reference that other people were watching him, became depressed, was afraid people would harm him, thought his food was being poisoned, had to be re-admitted November 23, 1933; symptoms continued. Patient was started on photodyn therapy February 3, 1935. Patient was uncooperative for oral therapy and therefore he received 20 injections of 2 c. c.; completed May 20, 1935. Laboratory examination showed a blood calcium of 6.76 and phosophorus of 3.99 before treatment was instituted; after treatment calcium was 9.58 and phosphorus 3.63.

Conclusions.—Patient had adequate treatment, was unimproved mentally or physically. There was a slight loss of weight and increase in the blood calcium.

14. Age 54. Diagnosed manic-depressive, mixed type. First attack of mental illness noted in 1910; lasted 13 weeks; recovered completely. Second attack in 1922, also recovered. Present attack September 1933 following minor automobile accident. Patient was worried, restless, attempted suicide. Here he is agitated, depressed, worried and retarded. Patient was started on photodyn therapy on January 18, 1935; received a course of 10 injections of 1 c.c. each every other day. This time patient developed a cellulitis of the left elbow and photodyn therapy was discontinued for a period of two months. Oral therapy 10 drops t.i.d. was started on May 1, 1935 and continued for a period of 28 days, then patient received a second course of 0O intramuscular injections of 2 c.c. each which was completed on June 20, 1935. Laboratory examination before treatment gave calcium 11.78; phosophorus 4.21; during treatment calcium 11.1 and phosphorus 3.92.

Conclusions.—Treatment adequate; patient unimproved mentally or physically. A slight loss of weight was observed.

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CRIMINAL BEHAVIOR IN THE LATER PERIOD OF LIFE.*

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Although it is generally observed that crime is a form of behavior most common to the young, that it shows a gradual increase in frequency in adolescence and a similar decrease after 40 years of age, the author believes that no adequate explanation for its later cessation has been presented.

A review of the scientific literature indicates that but little attention has been given to the medical aspects of criminal behavior. Except for notable isolated instances the interest is in the criminal in relation to the diagnosis and the treatment of disease. The medical indices over the last 15 years revealed only three references to studies of the older offender against the law. Strassmann [1] presented clinical and sociological studies of eight criminals ranging in age from 66 to 90 years. One of these had a long criminal record, another, an embezzler, had once before been charged with crime. The remaining six, including the 90-year-old, had no previous record of crime. Except for the embezzler all were charged with crimes involving sexual assault. In each instance the author pointed to the mental disease of the prisoner of which the crime was but a symptom. A second study of older offenders by Healy [2] deals with criminals who have not yet reached the period after 40 years with which this study deals. The third reference by M. Alexander suggests in its title that the author deals with the less serious offender after the juvenile period.

In addition to these references there have appeared from time to time reports of the control of crime through endocrine therapy.

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

[1] Strassmann, G.: Criminal deeds in senile mental debility. Deutsche Ztsch. Med., 10: 346, Aug. 16, 1927.

[2] Healy, W.: Psychoanalysis of older offenders. Amer. Jour. Orthopsychiatry, 4: 24, Jan. 1934.

These reports though dramatic in character have so far been unconvincing. However, the promise such studies hold deserves further consideration and investigation.

In the face of this dearth of medical literature the sociologists and psychologists have written extensively. The former see the diminishing criminality of this later period as a part of a normal curve of distribution. Sutherland [3] finds, " There is a gradual decline after the maximum until the age of 44 years, after which it drops rapidly." He adds, " But it is not to be inferred from this that old age is free from crime." A possibly significant relationship to type of crime is suggested by him with reference to studies of rape. Bowers [4] found that of 175 cases of rape two-thirds were committed " by decrepit old men over 50 years of age." The frequency of rape was compared with grand larceny. Among men over 70 years, whereas rape occurred once in four, larceny was found only once in 150 cases. This tendency of persons not previously convicted to violate the laws late in life rather than in middle age is believed " may be due to senile dementia, to changes in the prostate gland, etc."

Earlier students of penology have suggested that crime is like a disease process. Goring is reported to have argued that " crime is like scarlet fever." Recently Richard Cabot compared crime to disease in discussing the apparent inability of the agencies of the community to control juvenile delinquency effectively. He suggested " that juvenile delinquency might be what physicians call a ' self-limited disease ' which runs its course in the early adventurous, reckless years of youth and comes to a stand-still in middle life, when men begin to value their security more and their adventures less. This hypothesis is in agreement with the fact that we see so few middle-aged or elderly men in our prisons." [5]

Dean Kirchway, former warden of Sing Sing, has been impressed with the fact that among the prison population there are relatively few recidivists. In the face of studies by Sheldon and Eleanor Glueck which reveal that 80 per cent of prisoners continue in crimi-

[3] Sutherland, E.: Criminology, p. 90. Lippincott, 1924.

[4] *Ibid.*

[5] Cabot, R. C.: 1000 Delinquent Boys. The Survey, Vol. LXX, No. 2, p. 39-40, Feb. 1934.

nal careers after release Kirchway holds that the number of recidivists in the prison population should be much larger.

Psychological publications on criminal behavior though dealing primarily with the measurement of intellectual abilities and disabilities have concerned themselves with the significance of age. Murchison[6] observes that "approximately 88 per cent of the criminal group is composed of young men under 40 years of age." His conclusion, that "the older men either die or learn better methods," may, however, require further objective substantiation than is contained in his publication. Sociological studies revealed a greater incidence of sex crime in the later age group just as the psychological studies have done.

Kretschmer's studies of persons and classification by physical types has been followed by other investigations of criminals. However, no definite evaluation in relation to older offenders is available.

Why no further studies have been made of crime in this later age group may be due to the centering of interest on the part of investigators in the age when delinquency and crime have their inception. That there is a general, though not clearly defined, belief that the older age group bears a special significance to criminal behavior is, however, evident from the literature that is available. It is the purpose of this paper to study the records of the older group with particular regard to the following factors: Age, type of crime, nativity, color, education, intelligence, psychiatric findings and recidivism. The two following questions are raised: What is the nature of the person who commits crime after he is 40 years of age; and, second, What is the psychiatric significance of the diminishing frequency of criminal behavior in the older adult?

The material from which the study is made was collected from examinations of prisoners committed to the Illinois State Penetentiary convicted of felonious crimes. They are drawn from the entire state and are a part of the group admitted during the years 1934 and 1935. The number of cases investigated totals 486. The cases are unselected except for the fact that one-half are under 40 years, the other over 40 years.

We find those over 40 years make up 10.2 per cent of a total of 1083 serial admissions. In this larger group the maximum num-

[6] Murchison, C.: Criminal Intelligence. Clark Univ. Press, 1926.

ber of prisoners are found in the 19-year age group, but the median is in the 24-year age group. The youngest man admitted was 15 years of age and the oldest 64 years of age. All crimes were classified under the following heads: Robbery, larceny, burglary, murder, fraud and sex. A small number representing less than 7 per cent which did not lend themselves readily to such groupings were placed in the miscellaneous group. (Table I.) We find that the larger proportion of crimes was among the murder, fraud and sex groups, in marked contrast to the distribution in a comparable group including all ages. In the murder group the proportion was two and one-half times larger than that for the same crime for the all-age group, whereas in fraud and sex the proportion was

TABLE I.

PRISON ADMISSIONS.

	Over 40 years		All ages	
Crime	No.	Per cent	No.	Per cent
Robbery	30	12.4	329	39.9
Larceny	24	9.8	154	18.8
Burglary	37	15.2	154	18.8
Murder	55	22.7	71	8.7
Fraud	40	16.5	40	4.8
Sex	40	16.5	32	3.8
Miscellaneous	17	6.9	43	5.2

four times greater. In the robbery group the reverse was true. There were three times as many admitted for robbery in the all-age group as in those over 40, twice as many in the larceny group. In the burglary group the difference was not so marked, although even here it was one and one-half times greater in the all-age group.

The native-born white makes up by far the larger proportion, representing 60 per cent. (Table II.) It is significant, however, that 18.9 per cent are of foreign birth, in contrast to the low percentage of this group among admissions of all ages. Nineteen per cent were native-born negroes.

The educational achievement of this group was only approximately determined as it depended upon the statement of the prisoner himself. As is characteristic for prisoners, there was a marked limitation of schooling. Only 14 men had any college

training whatever. Thirty-three reported high school training. The largest group, 133, fell in the range including fourth to eighth grades. Thirty-eight had achieved only the primary grades and 25 showed either no schooling whatsoever or there was an absence of any record of schooling.

TABLE II.

NATIVITY AND COLOR.

OVER 40 YEARS OF AGE.

	No.	Per cent
Native born white	146	60.0
Native born negro	47	19.0
Foreign born white	46	18.9
No record	4	2.1

The intelligence level of criminals was based upon the measurements obtained in the use of the Army Alpha group test, the use of the individual Stanford-Binet test for those falling below the dull group, and the use of the performance tests with the illiterate. (Table III.) The distribution of intelligence is par-

TABLE III.

INTELLIGENCE OF CRIMINALS.

	All ages		Over 40 years	
	No.	Per cent	No.	Per cent
Very superior	62	7.5	6	2.5
Superior	147	17.8	28	11.6
Average	327	39.5	88	36.3
Dull	156	18.9	30	12.4
Borderline	84	10.2	34	14.1
Mental defective	51	6.2	58	23.9

ticularly significant in view of the large proportion who are found in the group of mental defectives. When compared with a group of prisoners of all ages this group is found to be almost four times as large. Whereas the mental defectives make up 23.9 per cent of prisoners in our study only 6.1 per cent occur in the all-age group. Although there is a general lowering of intelligence it occurs fairly uniformly throughout the various levels. Only 2.5

per cent are in the very superior group, as compared with 7.5 per cent in the all-age group.

Further inquiry into the significance of intelligence in relationship to the crime groups was made. (Table IV.) Here we found that this large proportion of defectives belonged primarily in the sex and murder groups. A similar low level was found in the burglary group. The distribution for the robbery group gave a fairly normal curve. In larceny virtually the same number of persons was found in each of the several levels of intelligence, except the very superior where there were none. The fraud group shows a distinctly higher intelligence level.

TABLE IV.

TYPE OF CRIME AND INTELLIGENCE.

Intelligence	Larceny	Burglary	Robbery	Sex	Murder	Fraud	Miscl.	Total No.	Total Per cent
Very superior	0	1	0	0	1	3	1	6	2.5
Superior	3	3	4	7	3	7	1	28	11.6
Average	5	14	15	9	19	20	6	88	36.3
Dull	5	4	3	6	5	6	1	30	12.4
Borderline mental defective	6	5	2	7	7	3	4	34	14.1
Mental defective	5	10	6	11	20	1	5	58	23.9
Total	24	37	30	40	54	40	17		

The psychiatric examination included in addition to interview with the prisoner, observation over a period of two to three weeks during the time that he was confined in the diagnostic depot in the Penitentiary System. It concerned itself not only with the study of gross psychopathology but also with personality traits indicative of the reaction of the prisoner to society. The psychiatric diagnoses are listed under eight categories. Prisoners were found to be distributed among them as follows: 37.4 per cent fall in the group classified as inadequate personality; 23 per cent are in the egocentric group; 11.9 are in the unstable group; 13 per cent were found to show distinct signs of psychopathy, of which the largest group was psychopathic personality, there being eight pris-

oners of the total number so classified. Seven were found to be psychotic and a like number classified as alcoholic deterioration, five as psychoneurotic, three as senile deterioration and two were epileptic. The psychiatric diagnosis of mental deficiency was made in six cases, representing 2.4 per cent of the group. Twenty-three, or 9.4 per cent, were found to be free from personality fault. Central nervous system syphilis was found in two cases and four were left undiagnosed.

As is well known, recidivism in prisoners is most difficult to evaluate. It is particularly significant, however, when the question of continued criminal activities is studied. Except for the previous record within a penitentiary or reformatory serious doubt must be raised as to the validity of record of other arrests

TABLE V.

PREVIOUS CRIME BY AGE GROUPS.

	No previous record		All convictions		All incarcerations		Prison		
Years	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	Total No.
15 to 19.....	39	52.0	36	48.0	19	25.3	3	4.0	75
20 to 29.....	37	29.2	90	70.8	74	58.2	37	29.2	127
30 to 39.....	9	22.2	32	77.8	31	75.6	20	48.7	41
40 and over...	117	48.1	126	51.9	119	48.9	79	32.5	243
All under 40..	85	34.9	158	65.1	124	51.0	60	24.6	243

and convictions. In the record of previous penitentiary sentence accuracy is assured by the practice of reporting such incarcerations to the Federal Crime Bureau. The record of institutional commitments and convictions without institutionalization was charted as well as the penitentiary reports. There is considerable uniformity in these three kinds of records, indicating a fair degree of reliability. (Table V.) We find that for our over 40 years group 51.9 per cent had a record of previous convictions of one form or other, whereas in a similar number of unselected prisoners under 40 years of age 65.1 per cent showed previous criminal record, an excess of more than 13 per cent in the latter group. This difference, however, is reversed when we deal only with those prisoners who had previous penitentiary sentence. 32.5 per cent of our group fall in this category as against 24.6 per cent of those

under 40 years of age, a difference of 7.9 per cent. When the various age groups are studied for previous criminal record we find there is a definite increase in the proportion as one passes from the 'teen age through the 20's and into the 30's. Previous penitentiary sentences were found in only 4 per cent of those between 15 and 19. In the group between 20 and 29 there were 29.2 per cent, an increase of 25 per cent. This increase is even more marked in the age group between 30 and 29. Here 48.7 per cent had former penitentiary records. When this is compared with the next age group we find a marked drop of 16.2 per cent. On the basis of the increase which occurred in the first three of these groups there is an expectancy of approximately 63 per cent for

TABLE VI.

CRIME AND PENITENTIARY SENTENCE.

	Under 40			40 and over		
Crime	No.	Per cent	Total	No.	Per cent	Total
Robbery	28	23.9	117	16	53.3	30
Larceny	13	20.9	62	11	45.8	24
Burglary	15	21.4	70	21	56.9	37
Murder	5	29.4	17	9	16.3	55
Fraud	2	30.0	6	8	20.0	40
Sex	0	0.0	8	8	20.0	40
Miscellaneous	2	15.3	13	7	41.1	17

the over 40 age group. Therefore, only half as many of the over 40 group have previous penitentiary sentence as might be expected. In the record including all incarcerations and including all convictions this same tendency to increase up to 40 years of age with a sudden drop after 40 obtains.

The further significance of previous criminal record and the type of crime was next studied. (Table VI.) Here again a marked difference was noted. The relatively small number of prisoners in this group convicted of robbery, larceny and burglary showed a very high percentage of previous penitentiary sentence; whereas, the murder, fraud and sex groups show only half as great a frequency.

The possible significance of psychiatric diagnosis in relation to recidivism was included in our study. Approximately the same

number of persons without previous convictions as with previous convictions was found in each of the various psychiatric categories. The one exception is the group classified as being without gross personality fault. Five times as many of these showed no evidence of previous conviction as those who had penitentiary sentence.

In the course of the examinations of these prisoners a classification, psychiatric in nature, formed the basis for the segregation of the criminals. Prisoners were studied with a view to determining the branch of the penitentiary system best suited to meet their training and treatment needs.

Since this involved not only diagnosis but treatability as well, both factors enter into consideration. The Illinois Psychiatric Research Council has drawn up the following table for classification of prisoners:

I. Psychosis.
II. Intellectually defective:
  A. Improvable—socially.
  B. With continuing criminal tendencies.
III. Those not intellectually defective nor psychotic:
  A. Improvable:
    1. Over 21 years of age.
    2. Under 21 years of age.
  B. Questionably improvable:
    1. Over 21 years of age.
    2. Under 21 years of age.
  C. Not improvable:
    1. Capable of satisfactory institutional adjustment.
    2. In need of psychiatric care and supervision.

When this group is studied in relation to this plan we find that 4.2 per cent fall in the psychotic group, 14.9 in the intellectually defective group, 56.0 in the improvable group and 24.9 in the unimprovable group.

Summary and Conclusions.

It seems fairly evident from this study that in the main persons who commit crime after 40 years of age represent a distinct group. They tend to commit crimes of violence, such as murder and sex crimes on the one hand, and fraud on the other. In the first two they tend to be relatively free from early records of delinquency and crime. In the second group their criminal behavior tends to

be a continuation of a pattern established at an earlier age. That smaller proportion whose crime is for gain tend to show extensive earlier criminal record. This older group includes many men coming from foreign countries whose ability to adapt themselves may be expressed in the violence of their behavior. This group is distinguished by the general lowering of intelligence, although this may be in large part determined by the method by which they are measured. Among them are so many persons of foreign birth and training that their ability to respond to tests developed for use with American citizens may account for the generally lowered response. They show a greater limitation of educational achievement. Perhaps this is due to the fact that coming from an older group their opportunities were more limited than for the younger criminal of to-day.

The more significant difference, however, is apparently related to the early history of delinquency and crime. The fact that there is such a marked drop in previous penitentiary sentence after the 30-year group must be considered as of particular significance. To conclude from this, however, that crime ends with the beginning of the second period of life cannot in this limited study be definitely shown. There is, however, fairly definite evidence that factors within the individual, perhaps constitutional in character, do determine not only the distinctive character of the criminal after 40 but also the cessation of the criminal activities about 40 years of age.

EFFECT OF VITAMINS A AND D AND MINERAL ADMINISTRATION IN DEMENTIA PRÆCOX.*

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This is an empirical therapeutic and biochemical investigation with vitamins in a group of dementia præcox patients checked with control studies. The investigation was carried out with vitamins A and D. Not being able to obtain the pure crystalline vitamin D of Windaus nor Euler's carotene, the material from which vitamin A is produced in the organism, we used viosterol in halibut oil which contains both these vitamins. The preparation used was biologically standardized, each gram containing 32,000 U. S. P. units vitamin A and 3333 Steenbock units vitamin D. Vitamin D, having mobilizing action on calcium and phosphorus, we have added to the diet of the treated patients a mineral mixture in tablet form containing 7½ gr. (0.486) of calcium and phosphorus.

The group consists of 15 female dementia præcox patients and an equal number of patients observed as controls and 17 male patients with the same number of controls. The three main types, the paranoid, catatonic and hebephrenic, were represented in about equal proportions. Prior to the institution of the administration of the vitamins and the minerals, physical and mental examinations were made and specimens of blood and spinal fluid were taken under basal condition for the determination of total lipids, total cholesterol, cholesterol esters, free cholesterol, lecithin, proteins

* This investigation was suggested and made possible by Dr. R. P. Folsom, Superintendent, Hudson River State Hospital.

The biochemical analyses forming the basis of this paper were carried out in the laboratory of Professor Isador Rosen, with the conscientious aid of Dr. A. S. Rosen, of the Department of Dermatology and Syphilology, New York Post-Graduate Medical School and Hospital, Columbia University, New York.

We are indebted to Mead Johnson and Co., Evansville, Indiana, for donating a generous supply of viosterol and mineral mixture to carry on this work.

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and calcium in blood serum and of the total lipids and lecithin in the spinal fluid. The same procedure was carried out in the control cases. During the period of treatment a monthly checkup was made on the physical and mental condition while a checkup analysis of the spinal fluid and blood serum was made at the end of the course of treatment. A similar procedure including the biochemical determinations was carried out on the control group. All efforts were made not to create any special atmosphere in order to avoid possible psychologic effect that might have influenced the results of therapy.

The ages of the treated female patients ranged from 20 to 47 with an average of 33½ years. There were five catatonic, five hebephrenic and five paranoid patients. One patient was admitted in 1910, seven patients were admitted in the years between 1920 and 1930 and the remaining seven since 1930. With the exception of one patient the entire group was treated for a period of six months. The patients were given 5 to 15 drops of viosterol three times daily and three mineral tablets a day.

In the control group the three main types of dementia præcox were equally represented. The ages ranged from 19 to 46, and the average age was 32½ years.

The group of male dementia præcox cases consisted of 17 patients treated and 17 controls. In the treated group there were eight catatonic, five hebephrenic and four paranoid patients; their ages ranged from 18 to 39 with an average of 26 years. Twelve patients were treated five months, four six months and one two months. Four patients of this group were admitted between the period of 1920 and 1930 and the remaining since 1930. The control group consisted of an equal number of patients with eight catatonic, six hebephrenic and three paranoid cases with ages ranging from 19 to 55 and with an average age of 30 years and 9 months. Twelve of these patients were observed five months and five six months.

The analytical procedures used in the determination of the lipids, proteins and calcium were those adopted by Rosen, Krasnow and Lyons.[1, 2, 3]

Results.

The averages vary only slightly from the normal—the greatest differences occurring in the values for total lipids, cholesterol,

cholesterol esters, lecithin and calcium as may be noted in Table I. After administration of viosterol and mineral tablets to females there was an increase in total lipids and lecithin for Series A. Also, from the relationships in Table II, a distinct rise in the percentage of female cases with high serum total lipids, albumen and globulin seems to have been effected by the ingestion of these substances. However, any significance which may be attached to such a finding is precluded by a glance at the corresponding figures in Table III for Series B. Exactly similar changes are listed. Equally interesting is the increase in average total lipid content at the end of the observation period for this set of cases.

These are not the findings for the males. Instead of a distinct rise in total lipids and lecithin there appeared a tendency to decreased amounts of these constituents in Series A as well as in Series B (Tables I, II and III).

Table IV shows the results of analyses for cholesterol and lecithin in the spinal fluid and gives further evidence of similarity for the two series. An investigation of the meaning of such changes would, no doubt, lead to very interesting findings.

The tendency for calcium values to fall above the normal average range, shown in Tables I, II and III, is noteworthy but the data to date do not warrant attempts at any definite explanation.

Clinically, of the 15 women patients one showed a temporary improvement; she left the hospital after four months of treatment, but had a relapse and was returned to the hospital a few months later (Table V). Another patient showed only a very slight improvement in her general behavior; she became more amenable to the ward routine without giving up her delusional ideas and without ceasing to hallucinate. The rest of the group failed to show any change in their mental condition during the six months of therapy and during the subsequent six months of further observation. There was no change in their physical condition, including the hematological findings, except for some variations in weight. Loss or gain of two or less pounds was not considered as a significant change. In seven cases a gain in weight was noted with an average of 10 pounds, the lowest being three pounds; in one instance a gain of 40 pounds was observed; this patient, however, was in good physical condition and weighed 167 pounds before he was submitted to the vitamin regimen. In another instance a

TABLE I.

Summary of Results of Analyses on Serum from Patients with Dementia Præcox.

CHOLESTEROL.

Descr. of subj.	No. of determinations.	Total lipids.	Total.	Esters.	Free. Amount.	Free. Per cent of total.	Lec.	Prot. Per cent. Albu.	Prot. Per cent. Glob.	Calc.
Normal	25	1510 ± 91	212 ± 18	152 ± 19	59 ± 6	28 ± 4	221 ± 18	4.8 ± 0.3	2.6 ± 0.1	11.1 ± 0.2
FEMALE.										
Series A: Administration of Viosterol and Mineral Tablets.										
Dementia Præcox:										
Before treat.	14	1531 ± 119	228 ± 34	168 ± 39	60 ± 12	27 ± 5	219 ± 27	4.6 ± 0.4	2.7 ± 0.3	11.8 ± 0.7
After treat.	13	1609 ± 183	221 ± 49	160 ± 42	61 ± 11	29 ± 5	232 ± 28	4.9 ± 0.4	2.9 ± 0.2	11.7 ± 0.6
Series B: Control on Time Interval.										
Dementia Præcox:										
Beginning of observ.	15	1484 ± 104	216 ± 41	155 ± 32	61 ± 13	28.7 ± 6.0	219 ± 25	4.6 ± 0.3	2.7 ± 0.2	11.9 ± 0.6
End of observ.	15	1578 ± 202	205 ± 35	142 ± 32	64 ± 12	32.0 ± 7.0	234 ± 24	4.9 ± 0.3	2.9 ± 0.3	11.5 ± 0.5
MALE.										
Series A: Administration of Viosterol and Mineral Tablets.										
Dementia Præcox:										
Before treat.	16	1529 ± 129	197 ± 24	141 ± 28	57 ± 10	29 ± 7	207 ± 19	5.0 ± 0.4	2.8 ± 0.4	11.8 ± 0.6
After treat.	15	1464 ± 138	202 ± 31	160 ± 23	59 ± 11	30 ± 7	196 ± 19	5.0 ± 0.5	3.0 ± 0.5	11.4 ± 0.5
Series B: Control on Time Interval.										
Dementia Præcox:										
Beginning of observ.	18	1492 ± 106	198 ± 29	145 ± 26	54 ± 13	28 ± 6	200 ± 23	4.8 ± 0.3	2.7 ± 0.3	11.6 ± 0.5
End of observ.	20	1372 ± 121	206 ± 37	152 ± 34	54 ± 14	27 ± 7	198 ± 23	4.9 ± 0.3	2.7 ± 0.2	11.6 ± 0.5

TABLE II.

DISTRIBUTION OF SERUM VALUES IN DEMENTIA PRÆCOX WITH REFERENCE TO THE NORMAL RANGE BASED ON RESULTS OF SERUM ANALYSES BEFORE AND AFTER THE ADMINISTRATION OF VIOSTEROL AND MINERAL TABLETS.

		Female.				Male.			
			Percentage of determinations showing values.				Percentage of determinations showing values.		
Analyses, Series A.	Treat.	No. of determinations.	Below normal average range.	Within normal average range.	Above normal average range.	No. of determinations.	Below normal average range.	Within normal average range.	Above normal average range.
Total lipids	Before	14	14	57	29	16	19	56	25
	After	13	23	15	62	15	40	40	20
Cholest. total	Before	14	36	21	43	16	56	25	19
	After	13	39	23	39	15	53	20	27
Esters	Before	14	21	50	29	16	50	25	25
	After	13	39	31	31	15	20	33	47
Free amount	Before	14	29	50	21	16	44	31	25
	After	13	31	46	23	15	20	53	27
Per cent of total	Before	14	36	36	29	16	38	31	31
	After	13	23	54	23	15	20	33	47
Lecithin	Before	14	43	29	29	16	56	31	13
	After	13	23	46	31	15	67	20	13
Albumin	Before	14	43	43	14	16	19	50	31
	After	13	15	54	31	15	7	47	47
Globulin	Before	14	14	50	36	16	25	31	44
	After	13	0	31	69	15	20	33	47
Calcium	Before	14	7	29	64	16	6	19	78
	After	13	0	39	62	15	13	33	53

TABLE III.

DISTRIBUTION OF SERUM VALUES IN DEMENTIA PRÆCOX WITH REFERENCE TO THE NORMAL RANGE BASED ON RESULTS OF SERUM ANALYSES CARRIED OUT AT THE BEGINNING AND END OF A DEFINITE OBSERVATION PERIOD. NO ADMINISTRATION OF VIOSTEROL AND MINERAL TABLETS.

		Female.				Male.			
Analyses, Series B.	Observation.	No. of determinations.	Below normal average range.	Within normal average range.	Above normal average range.	No. of determinations.	Below normal average range.	Within normal average range.	Above normal average range.
Total lipids	Beginning	15	33	60	7	18	22	61	17
	End	15	33	27	40	20	70	20	10
Cholest. total	Beginning	15	47	20	33	18	39	44	17
	End	15	47	20	33	20	50	20	30
Esters	Beginning	15	40	33	27	18	39	44	17
	End	15	40	47	13	20	35	40	25
Free amount	Beginning	15	27	33	40	18	39	33	28
	End	15	20	40	40	20	55	15	30
Per cent of total	Beginning	15	26.6	26.6	46.6	18	33	28	39
	End	15	20	33	47	20	40	25	35
Lecithin	Beginning	15	33	47	20	18	56	33	11
	End	15	33	40	27	20	55	40	5
Albumin	Beginning	15	40	53	7	18	28	56	17
	End	15	7	73	20	20	20	55	25
Globulin	Beginning	15	6.6	46.6	46.6	18	28	33	39
	End	15	6.6	26.6	66.6	20	15	45	40
Calcium	Beginning	15	7	27	66	18	17	28	56
	End	15	0	40	60	20	5	35	60

drop of three pounds was noted while the remaining five cases showed no particular change, if changes of two pounds in either direction are to be disregarded.

No change in mental or physical condition was noted in any of the women patients of the control group, they all are still inmates in the hospital at the time of this report. Three of the group showed a gain of 4 to 13 pounds, five showed a decrease from 5 to 15

TABLE IV.

SUMMARY OF RESULTS OF ANALYSES ON SPINAL FLUID IN DEMENTIA PRÆCOX.

FEMALE.

Series A: Administration of Viosterol and Mineral Tablets.

Descr. of cases.	Number of determinations.	Total cholesterol.	Lecithin.
Before treat.	14	1.5 ± 0.4	0.64 ± 0.1
After treat.	13	1.8 ± 0.4	0.59 ± 0.1
Series B: Control on Time Interval.			
Beginning of observation	15	1.7 ± 0.4	0.61 ± 0.1
End of observation	15	1.8 ± 0.6	0.54 ± 0.1

MALE.

Series A: Administration of Viosterol and Mineral Tablets.

Before treat.	16	2.0 ± 0.4	0.59 ± 0.2
After treat.	15	1.6 ± 0.3	0.55 ± 0.1
Series B: Control on Time Interval.			
Beginning of observation	18	1.8 ± 0.5	0.54 ± 0.1
End of observation	20	1.6 ± 0.4	0.50 ± 0.1

pounds, and in seven no appreciable change in weight was noted at the end of the period of observation.

Comparing both groups of treated and control patients we can say that with the exception of a somewhat larger number of cases with an increase of weight under treatment and with the exception of a temporary improvement in one case and slight improvement in another case there was no appreciable difference in the condition of the patients in both groups at the end of six months of observation.

TABLE V.

DEMENTIA PRÆCOX (FEMALES).

Treated.							Controls.						
			Weight.							Weight.			
Age.	Adm.	Type.	Bef.	Aft.	Dur.	Remarks.	Age.	Adm.	Type.	Bef.	Aft.	Dur.	Remarks.
1. 47	1910	Cat.	106	104	6 m.	No change	1. 33	1931	Cat.	143	143	6 m.	No change
2. 37	1921	Cat.	94	91	6 m.	No change	2. 33	1932	Cat.	102	90	6 m.	No change
3. 38	1926	Cat.	113	125	6 m.	No change	3. 25	1927	Cat.	135	130	6 m.	No change
4. 22	1933	Heb.	123	139	6 m.	No change	4. 19	1932	Heb.	111	112	6 m.	No change
5. 41	1929	Par.	156	163	6 m.	No change	5. 46	1926	Par.	136	136	6 m.	No change
6. 39	1922	Par.	114	112	6 m.	No change	6. 33	1930	Par.	112	107	6 m.	No change
7. 33	1926	Heb.	111	117	6 m.	No change	7. 40	1930	Heb.	124	132	6 m.	No change
8. 28	1931	Par.	109	123	6 m.	No change	8. 31	1928	Par.	96	100	6 m.	No change
9. 24	1933	Cat.	106	112	6 m.	Mild temp.	9. 40	1921	Cat.	94	107	6. m	No change
10. 37	1930	Par.	88	88	6 m.	No change	10. 47	1919	Par.	150	151	6 m.	No change
11. 20	1932	Par.	133	136	4 m.	Temp. imp.	11. 28	1931	Par.	101	86	6 m.	No change
12. 45	1929	Heb.	97	97	6 m.	No change	12. 21	1929	Heb.	126	116	6 m.	No change
13. 45	1930	Heb.	140	140	6 m.	No change	13. 46	1926	Heb.	110	109	6 m.	No change
14. 25	1927	Heb.	167	207	6 m.	No change	14. 28	1929	Heb.	93	93	6 m.	No change
15. 24	1933	Cat.	84	84	6 m.	No change	15. 20	1932	Cat.	88	88	6 m.	No change

TABLE VI.

DEMENTIA PRÆCOX (MALES).

Treated.							Controls.						
			Weight.							Weight.			
Age.	Adm.	Type.	Bef.	Aft.	Dur.	Remarks.	Age.	Adm.	Type.	Bef.	Aft.	Dur.	Remarks.
1. 19	1933	Cat.	167	164	5 m.	No change	1. 31	1931	Heb.	133	121	5 m.	No change
2. 19	1933	Heb.	142	134	5 m.	No change	2. 29	1932	Cat.	104	102	5 m.	No change
3. 23	1931	Heb.	115	116	5 m.	No change	3. 21	1931	Heb.	131	136	5 m.	No change
4. 25	1933	Par.	168	160	5 m.	Mild imp.	4. 23	1932	Heb.	145	156	5 m.	No change
5. 32	1931	Par.	108	107	5 m.	No change	5. 42	1933	Cat.	130	127	5 m.	No change
6. 26	1934	Cat.	162	148	5 m.	No change	6. 32	1928	Par.	114	116	5 m.	No change
7. 24	1931	Heb.	158	158	5 m.	No change	7. 36	1927	Cat.	140	137	5 m.	No change
8. 39	1930	Cat.	121	123	5 m.	No change	8. 28	1928	Heb.	119	118	5 m.	No change
9. 23	1931	Heb.	105	103	5 m.	No change	9. 19	1933	Cat.	111	110	5 m.	No change
10. 33	1929	Par.	147	138	5 m.	No change	10. 28	1930	Par.	118	118	5 m.	No change
11. 25	1933	Heb.	162	168	2 m.	Great imp.	11. 30	1933	Par.	139	136	5 m.	No change
12. 18	1933	Cat.	161	162	5 m.	No change	12. 32	1930	Heb.	122	125	5 m.	No change
13. 26	1927	Cat.	112	114	5 m.	No change	13. 22	1931	Heb.	111	130	6 m.	No change
14. 21	1931	Cat.	125	111	6 m.	No change	14. 55	1925	Cat.	111	123	6 m.	No change
15. 28	1931	Par.	120	123	6 m.	No change	15. 45	1933	Cat.	113	112	6 m.	No change
16. 29	1921	Cat.	131	132	6 m.	No change	16. 27	1928	Cat.	129	127	6 m.	No change
17. 33	1920	Cat.	117	120	6 m.	No change	17. 26	1929	Cat.	140	143	6 m.	No change

Of the male treated patients one has sufficiently improved after two months of therapy to leave the hospital (Table VI); he is a 25-year-old hebephrenic præcox. There was a slight improvement in the general behavior of another patient but not sufficient to warrant his discharge from the institution. None of the rest of the group showed any perceptible change in their mental condition. Six patients of this group showed a decrease in weight from 3 to 14 pounds, three patients gained from three to four pounds, while the remaining eight patients showed practically no change except for slight variations of one to two pounds in either direction in some instances.

None of the control patients showed any change in their mental condition at the end of the period of observation. Four patients lost weight at the end of the period, three three pounds each, while one lost 12 pounds. Six patients showed a gain from 3 to 19 pounds, and the remaining seven showed no marked change at the end of five and six months of observation. If we compare the results of the treated group with that of the control group we see that there were twice as many patients in the control group with an increase in weight as compared with the group of treated patients and practically an equal number of patients showing no change in weight in either group.

Summary of Conclusions.

Fifteen women and 17 men dementia præcox patients were treated with vitamins A and D and a mineral mixture for a period of several months. An equal number of control cases were observed for approximately the same length of time. Biochemical determinations were made in all groups at the beginning and at the end of observation.

One male patient has sufficiently improved to leave the hospital, a female patient showed only a temporary improvement. Two other patients, one in each group, have improved slightly but not enough to warrant their discharge. It is very questionable whether the vitamins were the responsible factors for the observed improvement; the psychologic element cannot be disregarded. The remaining treated patients failed to show any change in their mental condition and are still in the hospital. No change was noted in any of the patients of the control groups.

There was a higher incidence of gain in weight among the treated women patients as compared to that among the untreated patients. In the male group, however, the percentage of gain in weight was higher among the untreated control patients. The routine blood counts showed no variation of importance in any of the groups.

No definite changes in the biochemistry of total lipids, total cholesterol, cholesterol esters, free cholesterol, lecithin, albumen, globulin and calcium of the serum and of the total cholesterol and lecithin of the spinal fluid have taken place as a result of the administration of viosterol and mineral tablets.

There appears to be a tendency to increased serum calcium, probably due to the progress of the disease.

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PSYCHIATRIC STUDIES IN MEDICAL EDUCATION.

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The study of medicine subjects the student to many stresses. The effect on the physical health has been studied from various angles. At the University of Pennsylvania Opie and his co-workers have made important contributions from the point of view of tuberculosis.[1, 2] Dean William Pepper presented a summary of these findings to the Association of American Medical Colleges.[3] Briefly, it was found that positive tuberculin reactions increased from 84.8 per cent amongst first year medical students to 98.2 per cent in fourth year students. McPhedran reported that the incidence of apical lesions increased from 4.1 per cent in the first year to 20.5 per cent in the fourth. These studies called especial attention to the importance of student health examinations. They stimulated health examinations amongst students. They had not only a value from the point of view of personal hygiene and health, but they had also an educational value. Students who took the examinations learned more about tuberculosis and the value of routine health examinations.

But the study of medicine is not only a strain on the physical health of the individual. It is also a distinct strain on the mental health of the student. The effect on the mental health or personality of the individual is perhaps more important than on the physical. There is probably no professional preparation which is more rigor-

[1] Hetherington, H. W., McPhedran, F. M., Landis, H. R. M., and Opie, E. L.: Tuberculosis in medical and college students. Arch. Int. Med., 48: 734 (Nov.), 1931.

[2] McPhedran, F. M.: Incidence of tuberculosis in medical students. Twenty-fourth report of the Henry Phipps Institute, 1932-33.

[3] Pepper, W.: Incidence of tuberculosis among medical students. J. Assoc. Amer. Med. Coll., 7:5-11 (Jan.), 1932.

ous in its demands. The strains are not only physical, but mental, emotional and social. There is not only the intellectual requirement of learning a vast number of facts. There is the continuous application and rush which leads many to neglect their physical health. The wholesome effect of hobbies and the more usual methods of relaxation and diversion are frequently neglected by the push of work. But in the study of medicine the student meets, repeatedly and prematurely, compared with students in other professions, the great crises of life. And he meets them in concentrated doses. Suffering, sickness, death are his daily environment. Birth, death, hopelessness he sees frequently. Misery, poverty, tragedy are frequent contacts. Courage and weakness, hope and despair, love and hate, he meets in stark forms. No professional training brings its students so young into such intimate contact with heroism and cowardice, wisdom and stupidity, the depths and exaltations of life, as does the study of medicine. Religion, ideals, mores are assaulted and tested. Dissident ethics are encountered daily. Hence medicine is not only a strain on the physical health, but a tremendous strain on the forces making for the stability of the personality.

This paper is the introductory one of a series. The purpose of our studies has been to observe and record the effect of the study of medicine on the personality and mental health of the medical student. What are the strains? What are the most usual reactions? Do the stresses that must be met arouse neurotic responses in only a few unstable students or are neurotic reactions found generally at some time or other amongst the majority? What happens to neurotic tendencies once aroused—do they tend to persist and become fixed as neuroses, or do they disappear? Does the study of medicine create them or only exaggerate them? Are untoward reactions favorably or unfavorably influenced by the experiences the medical student must go through? Does the study of medicine make for stability or instability? Does the type of instruction or the attitude of the instructor have any significant effect on the student's mental and emotional health? Is medical education geared to help the student or hinder him as regards his mental health? What is the picture of the medical student as regards his mental health and how does it change during the four years? Is there a mental hygiene problem of medical students? These are some of the questions that naturally occur to anyone in considering this

subject. These questions are our problem. Naturally then our first step was to find a means of obtaining observations or data on the mental health or personality of the students.

This first paper is a discussion of our plan of study and technique. The methodology of such an investigation is very important. There are objections often raised to the methods of obtaining psychiatric observations. The paper presents in some detail the methods employed in making our observations and the care with which we have drawn conclusions. As such, it is chiefly a discussion of methodology. The papers to follow will present a statistical statement of our observations and the conclusions we think may be drawn from them.

The method of personal interview was rejected for several reasons. In the first place, it was not thought the student would express himself so frankly in a personal interview with an instructor as he would if his remarks were made anonymously. This would afford freedom, absence of restraint and no chance of anything being held against him for his opinions and reactions. Secondly, the time involved and the difficulty of making a possible schedule of interviews ruled it out. Finally, it seemed more desirable and objective for several psychiatrists to go over the observations at once and give their combined impression, rather than take that of any one psychiatrist. This we thought lent more objectivity to our observations. The questionnaire method of obtaining information was therefore adopted. In a succeeding section the reliability of this method will be discussed.

Francis Galton was one of the first to use the questionnaire method. In one of his books [4] Galton appends a list of "Questions on Visualizing and Other Allied Faculties." Earlier in the same work (page 84) he comments on the difficulty of framing questions and gives a number of requirements for a satisfactory questionnaire. He indicates four points that should be met. First, the questions should be such that they can be quickly and clearly understood. Second, they should admit of easy reply. Third, of course they must cover the ground of the inquiry, be sufficiently extensive. Finally, he says that they should tempt the subjects to write freely, elaborate, and make fuller explanation of their replies.

[4] Galton, F.: Inquiries into human faculty, p. 378, 1883.

It seems worth while to indicate briefly how the questions were formulated. The contents of a number of well-known questionnaires were studied. Among these were Woodworth's Neurotic Inventory,[5] Thurstone's Personality Schedule[6] (which has been found to be a reliable index of neurotic tendencies), Bernreuter's Personality Inventory,[7] and Wells' Study of Personality Traits.[8] Then 12 experienced psychiatrists and four recent graduates of medical schools were told the problem and asked to formulate questions that they thought most relevant and helpful. No suggestions were given as to the type or comprehensiveness of the questions desired. Each physician was left free to formulate the questions which in his judgment would be most significant and likely to discover neurotic trends.

From each physician was received from 10 to 20 questions. Approximately 250 questions were then available from which to choose a satisfactory and reasonable number. Several of us then grouped all the questions according to a modification of Amsden's scheme for personality study.[9] Four of us then reviewed all the questions and selected those which seemed significant for our problem. Finally a list of 75 questions was determined upon as being reasonably satisfactory. There was some duplication of questions in different phraseology to check up a student's consistency, conscientiousness and care with which he answered the questions. This was helpful too in case an individual missed a question or answered it hastily. Fortunately as it turned out there were few questions missed and there was an internal consistency in the overwhelming majority of the cases, that made the picture of a given personality's problems and reactions very clear. As an example of how one question checked up or supplemented another we might cite the following questions:

No. 4. How is your physical health? How is your physical condition?

No. 9. Since studying medicine have you developed any persistent physical symptoms, *e.g.*, pain, palpitation, indigestion, etc.?

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[5] Published by C. H. Stoelting and Co., Chicago, Ill.

[6] Thurstone, L. L., and Thurstone, T. G.: Personality schedule, Published by the University of Chicago Press.

[7] Bernreuter, R. G.: The personality inventory, Stanford University Press.

[8] Wells, F. L.: Report on a questionnaire study of personality traits with a college graduate group. Mental Hygiene, 9 (Jan.), 1925.

[9] Amsden, G. D.: A guide to the descriptive study of the personality. The Bloomingdale Hospital Press, White Plains, N. Y.

No. 47. Has anxiety about your own health been aroused by your study of disease? Has fear of infection or contagion worried you, in dissection, pathology laboratory, or clinics?

The questions were very comprehensive. They related to all aspects of the student's life. As we were arranging the questions, they were grouped under four chief headings, viz., somatic and physical, intellectual, emotional and social. It was convenient to have such a grouping, because when we made summaries in reading over the answers, we could fit them into a rather simple scheme for consideration and analysis. All questions relating to one subject were not arranged immediately following one another, in order that again we might check up hastiness, carelessness, or inconsistency. Under the heading of social reactions in our preparation of the questions and in our summaries we included such things as the following: Type of personality, whether extravert or introvert; questions relating to maturity, ideas of sex, marriage and parenthood, or homosexuality; vocational adjustment; plan of life, ambition, economic considerations; satisfaction as to education or the reverse; opportunities, family stresses, attitudes toward parental training and religious and ethical ideas and practises. . . . . It is remarkable that out of the 75 questions only one, no. 33, seemed to be the least revealing:

No. 33. Are you scrupulous, neat, meticulous, punctual, reserved, spontaneous, dominating, submissive, indifferent, careless, inaccurate, impulsive, lazy? Underline the traits which characterize you.

This question, which is one of the most specific, and which required only a dash to indicate a characteristic that applied to the student, nevertheless was consistently the most unsatisfactory question. It was invariably answered but it helped least of all in obtaining a picture of a given personality. This study is different from many questionnaires where underlining or checking is the chief form of response. In this questionnaire, in the great majority of questions, definite written replies were necessary—and they were obtained.

The reliability and validity of the results obtained by these questionnaires surpassed by far our expectations. There were only three papers in the senior class of 117 that were unsatisfactory for one reason or another. Only three were not sufficiently accurate and detailed to give us a clear cut picture of the personality or the prob-

lems of that particular student. None was facetious. The percentage return was good, therefore. Jordan [10] says that if 75 per cent of the questions are answered or returned in a questionnaire the results may be considered reliable if they are internally consistent. Reviewed from this standard, our results are very reliable. A number of things contributed to this. It was not merely the comprehensiveness of the questions, their overlapping, and their clearness. It was not merely a mechanical application of a test. The method of approach, presentation and appeal we believe were of the utmost importance. This cannot be emphasized too strongly. The appeal was made on a personal and scientific basis. The success of the effort must be laid in great part to this tactful and personal appeal. Since we know of other questionnaires that have failed completely, it seems worth while to present briefly our plan of approach to the students. One class was given the questionnaire the day before the other three classes. This seemed to make little difference, although we would have preferred that they all came the same day.

The week before the questionnaires were to be given, the Head of the Department appeared before each class for a few minutes. He told them the following meeting would be devoted to a psychiatric project, that he hoped as many as possible would be present that day, and that they would cooperate in the undertaking. Several days before the questionnaires were to be given, remarks reached some of us that some of the students were going to take the undertaking facetiously. The Head of the Department wrote a letter to the president of each class, who read it to his groups. In this letter an appeal was made for the students to cooperate in a scientific investigation of the effects of the study of medicine on the personality.

At the beginning of the period (the Dean kindly allowed us three hours for each class) a member of the Department of Psychiatry addressed remarks to the class before the questionnaires were distributed. In these remarks a personal appeal was made for cooperation and sincerity of replies. It was pointed out that psychiatry is chiefly advanced by what people tell us of their thoughts and feelings. It was indicated that in dealing with normal

[10] Jordan, A. M.: Educational psychology, New York, 1933.

individuals under vocational strains, data could be obtained of scientific value, and perhaps also of value in thinking of problems connected with the medical curriculum. We emphasized that the study was absolutely anonymous. The students were requested to make their answers with a scientific conscience and not to answer at all rather than give untruthful replies.

The time allowed for answering the questionnaire was three hours. The reaction of a number of members of the faculty to answering 75 questions was rather overwhelming. They believed it too great an undertaking, and that it would require so much time that everyone would become tired, bored, and careless, so that the results would be unsatisfactory. Fortunately, about 10 days before the questionnaire was given, it was tested out on a medical student from another school. He answered all questions conscientiously and fully, in 1 hour and 20 minutes. He did not feel the questionnaire was too long, even though his answers were very detailed, and showed evidence of great emotional difficulty. It was known by one of us that he suffered from a marked schizophrenic episode. Another of us read his paper and from the analysis of his replies alone the estimate of his condition and personality tallied perfectly with the psychiatric examination of the other. This was our first direct evidence of the reliability and satisfactoriness of the questions. In the senior class, on which this first section of the report is based, the majority of the students required an hour or more, and less than two hours. The following table shows the time required by the senior students to answer the questionnaire:

Time groups.	Reliable.	Unsatisfactory.	Sketchy.
I (0′-40′)	5	..	1
II (40′-60′)	50	2	1
III (60′-90′)	44	1	6
IV (90′-120′)	7	..	..

The questionnaire method is open to many criticisms. As stated above, its origin is probably traceable to Francis Galton. Through its use G. Stanley Hall collected much valuable information for education. Leuba has used it extensively in his studies on religion. It is one of the recognized procedures, but it has many pitfalls.[11] Ruckmick points out the following weaknesses of the method.

[11] Ruckmick, C. A.: The uses and abuses of the questionnaire procedure. Jour. of Applied Psych., 14: 32, 1930.

The questionnaire method has a tendency to stress explicit and categorical answers. The expert, he says, refuses to be categorical while immaturity tends to be explicit. In this study it seems to us the answers show a wholesome balance between concise, explicit answers and the " fuller explanation " and elaboration Galton seeks. In the great majority of answers in this study they are elaborated sufficiently to be considered very satisfactory. Ruckmick of course points out that questions can contain such crude suggestions that they lead to biased answers. We believe this does not apply in our questionnaire. He points out that often there is an unsystematic type of data obtained by the questionnaire. This objection is eliminated in our case by the careful, systematic grouping of the questions before they were distributed in the questionnaire. Our data summed up is not unsystematic. The uncertain nature of the interpretation of results is an important criticism, but this is not limited to the questionnaire method. The interpretation of all data offers chances for error and misrepresentation. In our study we have tried to obviate this objection by having three psychiatrists interpret each separate paper. An interpretation was recorded only when all agreed. We have not tried to force diagnosis or impressions of neuroticism. Where there was question of doubt we have always leaned toward the side of normal classification. Ruckmick also speaks of the false glamor of statistical presentation: " However highly statistical treatment may be rated, the results are often not much better than their origin." Certainly in this study the origin was felt to be genuine and reliable in the overwhelming majority of replies. On this point we lay our greatest stress as a point of departure for our study. We believe the replies were formed on a solid basis of honesty. " The seriousness with which the replies are made varies greatly even to the vanishing point of lack of good faith." [12] The frankness of the replies, it seems to us, establishes the faith without which such a study would be useless. Ruckmick continues, " The effect of the demand for a signature to establish good faith must in no case be overlooked." We disagree with this statement heartily. If signatures had been attached to many of our questionnaires, it is certain we would not have received the frankness of replies which forms one of the indisputable strengths of our study. If the students had

[12] Ruckmick: *Op. cit.*

known their names and individualities personally would have been known and opened to scrutiny, they would have been much more reserved.

If many questions are left unelaborated, it invalidates the method. Fortunately, this did not occur for us. The same applies to replies left blank. Relatively, they were very few. There was little evidence of the students feeling aggrieved at the questions asked, and refusing to reply. In addition to the information we have obtained and the conclusions we have reached, we believe our study is a contribution to the methodology of psychiatric investigation by the questionnaire.

Rugg [13] emphasizes the importance of showing the respondents the pertinency of the inquiry. We have indicated how this was done in our appeal to the students before being given the questionnaire. Rugg suggests that the introductory paragraph be somewhat explanatory so that the respondents will know what one is doing and also arouse interest. Question number one did just this.

Waddle [14] reviews very clearly the value and the objections to questionnaire methods. The value he says depends on,

1. The nature of the topic investigated
2. The care and skill of the formulation of the questions
3. The representative character of the group questioned
4. The honesty and conscientiousness of the respondents
5. The scientific ability of the investigators interpreting the material
6. The use made of the deductions.

We believe our study fulfills reasonably well all of these qualifications.

Further points supporting the reliability of our study follow. The duplication of questions in different terminology was a check on reliability. There was a scattering of questions so that they did not appear too rigidly divided into classes. For example, all social questions were not all grouped together: some appeared under sex or anxiety or physical symptoms. Many students wanted questionnaires to keep, expressed interest in the study and satisfaction with the entire procedure. A number of students have

[13] Rugg, H. O.: Statistical methods applied to education, 1917.
[14] Waddle, C. W.: An introduction to child psychology, 1918.

asked for personal conferences with one of the psychiatrists following the answering of the questionnaire. We have encountered students now serving interneships who had taken the questionnaire and asked them specifically as to their opinions as to the reliability of the answers the students gave. The invariable reply of these men one year later, as the reply of the students the same year, was that the answers were given *bona fide*. We have inquired of the same group whether they heard any unfavorable comments and their answers were consistently "No." During the actual answering of the questions and immediately thereafter we had no humorous comments, no joking nor kidding, in fact, nothing which would indicate that the whole affair had been taken in any way other than with the appropriate seriousness. The attitude of the groups was dignified and they seemed to have a feeling of responsibility in their attitude toward the study.

The reliability was further confirmed by the fact that of all the papers returned only three were unsatisfactory and not one was facetious. There was remarkable correspondence and faithfulness between the replies in the questionnaire and the picture as painted in the actual case study of several students who later consulted some of us personally, yet who at the time of the questionnaire had not thought of so doing. The consultation in these several cases validated the truthfulness of the questionnaire picture of the personality.* We firmly believe that any impartial observer of experience, going over the replies, would feel satisfied and convinced of the truthfulness of the picture obtained in the great proportion of cases. There is usually an inner consistency and genuineness of impression.

But we come back to the question of frankness and truthfulness as the basis of our claim for reliability and validity. In substantiation, let us give some actual quotations:

Student 8 is very frank with regard to questions on sex. "Has your sex desire been stimulated or decreased by the study of medicine?" Answer: "No particular change in the desire. Have found it easier to satisfy." "How have you dealt with the problem?"

* Several students who consulted us were asked if they had any objection to helping us in the study of the questionnaire by trying to find their own papers and letting us compare them with what they had told us in our psychiatric interview. They willingly complied with these requests.

"Naturally, though not excessively." " Has fear of venereal infection changed your sex life?" " I think so, in that I am a bit more careful 'where I put it' since professor X shouted 'lues, lues, lues' to us."

Student 13 in response to the question why he had studied medicine said, " My grandfather was an M. D., my father was an M. D. I was an only child. It would have been immoral for me not to have been an M. D."

Student 15 says that since studying medicine he has felt differently about his childhood, childhood training and parents. " Being born of foreign-born parents and living all my life in the slums of a large city, there are still remaining in me certain traits which I would like to lose."

Another student says his sex desire has been stimulated by the study of medicine. " How have you dealt with the problem?" " I have satisfied my desires." " Has fear of venereal infection changed your sex life?" " No. 'The woman is above reproach.'"

Student 17 is frank in discussing his self-confidence in medical school. " More self-confident in a way. In high school I was a 'big shot.' In college I took a big 'fall' (luckily). At present I realize that if you work hard and get an even break you have a chance to get along."

Student 31 discusses his symptoms freely in response to question one. " Several periods of depression. The first at the age of 14, then worrying about illness of a parent. Most recent at age of 21, worrying about an ill sibling. Periods of emotional numbness (lack of interest in anything) follow periods of depression and also periods of worry such as the attempt to get a satisfactory interneship. Physical symptoms include feeling of constriction in abdomen, and dyspnœa. Mental symptoms include inability to think clearly, inability to concentrate."

Student 33 is frank. He raises some points in the mental hygiene of childhood. " Have you been more conscious of either physical or mental defects since your study of medicine?" " Yes." " Explain." " Self-consciousness. Class room demands of the individual, participation. Discussion constantly forces me to focus my attention on myself." " Since studying medicine do you feel differently about your own childhood, your childhood training, or your parents?" " Yes. I am sure that the domineering attitude of

my father has contributed much to my shyness." With regard to sex, he says, "I abstain from sexual contacts because of family training. Sexual life in my case means married life. . . . ." With regard to religion he replies, "I am a church goer. The only consistent attitude to me is one of modified fundamentalism. . . . ." "Have your thoughts concerning death been modified by your study of medicine?" "Death has lost its horrors but not its sorrows."

A frank description of a neurotic episode is from student 44: "During pathology I had tonsillitis for a week. Thought I had palpitation and afterward thought I could hear a murmur. Had dyspnœa on exertion and thought finger nails were cyanotic. An older student took me to a doctor who said there was nothing wrong. All symptoms left over night."

Student 50. "Has the study of medicine influenced you to think certain thoughts that constantly distract you?" "Yes. It has been of value in helping me to break away from masturbation. Have consulted G. U. men about this habit. Probably would not have had the nerve to go to anyone about this problem unless medicine had removed some of its horrors. . . . ." "Have lost a hypercritical attitude to others. . . . . Have come to feel more self-confident." "Most pleasant medical experience?" "Six weeks as junior interne in maternity hospital." "Most unpleasant?" "A patient of mine dying of puerperal sepsis."

Student 60 has the following reactions: "Aloneness—with unpredictable periods of tension and tears. Headache, throbbing, afternoons, two-three days per week. Sensitiveness—sometimes palpitation and nausea. Fear—that emotional instability may interfere with the routine of an interneship. . . . ." "Sex desire?" "Increased. Attempted sublimation, group living, out of doors, rather than parlor dates, social contacts through religious groups, sports." "Religiously more-tolerant, less dogmatic. Spiritual conceptions entirely in harmony with scientific knowledge." "First reaction to chronic hopeless disease?" "Remembered what an old doctor told me: 'Nine-tenths of what we do in medicine is to help people bear things that no one can do anything about.'"

Student 61 had the following neurotic reactions: "Persistent thought that I had adeno carcinoma of the rectum in second year. Spasm of esophagus upon swallowing led to disturbing and persistent worry over cancer of esophagus. Perennial sinusitus and its relation to bronchiectasis is an annual fear."

Student 57 was frank about previous illness. "Have had two 'nervous breakdowns.' . . . . I had marked insomnia, marked fatigue, anorexia, diarrhea, fears. . . . . Faintness during an operation. . . . . Have a much clearer understanding of my childhood compulsions, shyness, and adolescent problems. . . . . Religion means more to me. . . . . Idea of immortality of the soul seems increasingly certain."

We have quoted examples in detail to show that the frankness extends not only to matters of sex and personal problems, to physical health and neurotic symptoms, but also to social relationships, ideals, and the personal needs (or distaste) for religion. There is no question in the minds of those of us who have gone over these questionnaires in detail, that the greatest number of students answered these questions honestly and with a scientific conscience.

Method of Analysing the Questionnaires.

The analytic work was done by three psychiatrists, *working together,* at the same time, on the same questions, charts, tables, summaries and impressions. Nothing was checked, recorded or summarized that we did not all three agree upon. Nothing was left to the individual opinion of one psychiatrist. *Each answer to each question of each student was checked by the three of us.* In being thus careful, and requiring unanimity of observation and deduction, we tried to arrive at objectivity. It is probably a conservative estimate to say that each psychiatrist gave two and a half to three hours to the study and analysis of each paper. This was independent of the time required in statistical work, making tables, or writing the paper. Thus, literally from seven to nine hours were given to each student's paper. This is an indication of the care with which we worked.

There were five steps to the consideration of each paper. These steps will be briefly reviewed.

1. The answers on the *questionnaire* were read and checked one by one by three psychiatrists together. (A variation to this which saved time was for one psychiatrist alone to go over each paper and write a summary which was read to the three psychiatrists before the whole questionnaire of that individual was reviewed in its

TABLE OF CLASSIFIED DATA

No. of student.	Reliability.	Clear, detailed, superficial.	Personality.				
			Extra.	Intro.	Normal.	Neurotic.	Psychotic.
84	+	Clear. Not elaborate.	Ext.	—	N	—	—

INFLUENCE OF MEDICINE.

On personality.			On physical state		
Neurotic.	Psychotic.	Normal.	Normal efficiency.	Somatic state.	Remarks.
Slight.	—	—	0	Good.	Less exercise. Eats irregularly. Drinking reduced. Smoking increased.

Somatic physical symptoms.		Intellectual.	Emotional difficulty.			
Possession.	Influence.		Possession.	Influence.	Created.	Remarks.
—	Indigestion before final exams.	Work is easy. Fair preparation. Standing higher—middle third. Enthusiastic. Disliked course X. Going into G. P.	Indigestion after meal.	Symptoms aggravated.	Vomiting occasionally previous to finals. Fear of cancer. Depressed by chronic and hopeless disease.	Day dreams of future practice and hypothetical cases. No alcohol. Hobbies: golf, swimming, reading, bridge. Engaged. Has faith. Worrisome. Feelings of guilt for short time.

SOCIAL REACTIONS.

Normal.	Abnormal.	Affected favorably.	Unfavorably.	Create maladjustments.	Remarks.
√	—	Life means more. Viewpoint broader.	Feelings of inferiority.	—	Likes company of both men and women.

entirety again and the impression written. This method was used for approximately half the cases.)

2. The answers were checked on a large statistical chart. Interesting items were asterisked for comment.

3. Answers were then rearranged in a *table* according to the original classification of data desired—physical, intellectual, emotional, social being the headings. It will be remembered that the questions were originally scattered in the questionnaire so that all questions relating to physical health and neurotic symptoms, for example, did not follow one another. So in analyzing the papers, the material was arranged systematically in a large table, in order to get data grouped together. An example of this table follows. It seems elaborate, but it was a great help in obtaining a bird's eye view of the various reactions of each student.

4. After a complete review of the original paper and a consideration of the table of classified data, the following summary was made by the three psychiatrists:

Summary: Frank normal extravert. Paper not elaborate. Student developed neurotic symptoms after admission to medical school. More marked especially with final exams. Caused vomiting at times. Wants to be general practitioner. Medical school brought to light some inferiorities, though in general he has been helped by medical studies. Middle third of class. *Impression*—typical extravert personality. Normal.

5. A final *impression* was made and the paper was classified in a certain group, that is, *normal* or *neurotic*.

Standards of Classification.

The responses in the questionnaires fall into three broad, readily recognizable groups. They are the *Normal*, the *Neurotic*, the *Prepsychotic*. It seemed to us possible to separate the neurotic group into three subdivisions—the *mildly* neurotic, the *definitely* neurotic, and the *markedly* neurotic.

(I) In the normal group we allowed a moderate amount of sensitivity and slight instability. There could be self consciousness, for example, occasional palpitation, indigestion, headache, or slight anxiety, which had no persistence and which was of little significance fundamentally.

(II) Group two was thought of as being mildly neurotic. Or usually there was the story of a definite *episodic neurotic reaction* some time during the study of medicine. But this had not lasted

long, had been overcome, or successfully dealt with. At some time in the medical course this group might have been called "mildly unstable."

(III) Group three included those *definitely neurotic*. There was a definite, persistent instability. This was usually not overcome. It was a burden or handicap the individual had to bear. But we felt in this group he could carry the load or make the grade in the future. He was handicapped, but we felt reasonably sure he could carry it and thought it would not greatly interfere with his professional accomplishment or social adaptation.

(IV) Group four was the *markedly neurotic* group. Here there were neurotic symptoms usually in more than one system of the body or there were marked psychological neurotic manifestations. In this group the student was not only definitely handicapped, but we felt uncertain of his ability to carry the load, *we felt insecure about his future*. We had the impression that his instability would interfere a great deal with his life adjustment and professional accomplishment. The uncertainty of prognosis distinguishes this group from group III.

(V) In Group five, the instability was most marked, or there was a history of serious instability. The personality had been seriously disorganized, and the prognosis was precarious. There was a severe instability. The following table shows our standards of classification:

STANDARDS OF CLASSIFICATION.

Group.	Degree of instability (neuroticism).	Frequency.	Prognosis.
I.	Normal. Slight.	Occasional.	Good.
II.	Mild.	Episodic. Temporary interference.	Good.
III.	Definite.	Fairly constant burden.	Good. We feel certain handicap can be carried.
IV.	Marked.	Permanent handicap.	Doubtful. We feel uncertain whether handicap can be carried.
V.	Serious.	History of a severe attack (*e. g.*, true depression) or Presence of permanent severe instability.	Precarious.

Let us now give a few illustrations of each group. It will be seen that we have tried on every occasion of doubt to lean toward the normal side in all evaluations of normalcy or neuroticism. It is possible that because of a frequent implication that psychiatrists always look for abnormalities, we have leaned backwards in our effort to avoid such errors.

The following summary is an example of a paper taken as *normal*, that is, Group I:

99. Normal extravert. Clear, reliable. Doctor's son. Since medical school had occasional, sudden, severe pain in chest. Slight insomnia and irritability. Mild fears in bacteriology and of cut on hand after delivery of luetic woman. Mild worries about F. H. of cardio-renal disease and cancer. Gynecological exams in very young girls were distasteful. Disliked to see patients suffer. Feels humanising influence of studying medicine. Has some feelings of inferiority socially and as to medical knowledge. No change in religion. Feels need for it. Fears death less keenly. Impression: Very mild neurotic reactions aroused in normal personality. Medicine helped to stabilize his personality.

Following is an example of *Group II* or *mildly* or *episodically unstable* or *neurotic*:

65. Introvert. Very clear, frank, detailed paper. Has good insight and evaluates questions remarkably well. Neurotic symptoms developed after study of medicine, but has learned to control them. Worried about unsettled interneship. Greater instability. Drinks more frequently but less in amount. Is idealistic. Stresses physical well being. Feels that medicine lessened sociability. Studied medicine to protect self from tendency to introspection. Looks upon motherhood less idealistically and feels disillusioned about women. In love and has sex companionship with married woman. Since studying medicine, has broken off engagement. Developed syphilophobia. Feels he was unfairly criticized by a professor. Fears disease of genitalia. Feels more stable, confident, more able to enter social relationships, less self conscious and introspective. Feels first two years caused "hell of an inferiority complex" which he has outgrown. More tolerant. A little cynical about religion. Impression: Fairly well oriented with strong conscience, feelings of guilt regarding sex relations with married woman and his own broken engagement. Analytic type. Medicine created and corrected some neurotic reactions.

The following is an example of *Group III* or the *definitely neurotic*, yet who will be able to carry the burden of instability:

66. Reliable, clear, detailed. Family stresses increased desire to work. Feels he is an extravert, but indications are of moderate introversion. Neurotic symptoms developed after study of medicine. Points of significance:

Syphilophobia. Worries about renal disease. "Father has kidney lesion" and student has great fear of his father's death in distant country area. Attachment to father. "My father, whom I know has a kidney lesion and who is living miles away may have a sudden catastrophe and I would be unable to cheer and comfort him." "Dad and I are more pals than father and son." Unhealthy curiosity about people's mental processes. "Father confessor to younger men." Realized in medicine the difficulties of parenthood. Resorted to alcohol to ease depression and strain. Studied medicine in desire to help others. Hobby is pistols! Makes "friends easily with the masculine type, tall, erect." . . . . "The small male with soprano voice is to be pitied rather than befriended." Reaction to delivery disproportionate. "The difficulties of delivery, pains of child birth, and gamble with life that women take brings forth my sincerest admiration for any woman who has been a mother." In answer to the question about doubt concerning masculine make up, student writes: "Let sleeping dogs lie." . . . . "The desire of being a leader in the profession prohibits feminine entanglements, too much at stake to attempt a serious thing like matrimony without any worldly goods." Fears disease of kidney and lungs. Fears lues. "Some day I intend to marry and expect to have a family of healthy children with tall sons." Reaction to dissecting room: "Skinned a human and a slight squeamishness." Sputum and feces cause difficulties of the G I tract. "I don't like filth on my hands." Contact with venereal patients increased "fears of infection leading to extra precautions and free use of rubber gloves." Embarrassed in "making a rectal on a decidedly pretty patient." Feels more tranquil, more stable, capable, more serious minded, in professional and social relations. More self confident by reason of practical work. Impression: Markedly neurotic.

Group IV is the *markedly unstable* group whose prognosis is uncertain:

56. Extravert personality who classes himself as an introvert. Frank. Feelings of self consciousness and inferiority somewhat overcome after a period of exaggeration. Needs all props of medicine to feel confident. Builds up defense against belief in inferiority. Became cyclothymic in medical school. Needs alcohol as a social prop. Hard to concentrate, almost morbid difficulty in making decisions. Examined semen under microscope. Depressed by misery. Irritable before examinations. Day dreams. Self accusatory about ambition and accomplishment. Would like to talk to a psychiatrist. Lost outside interests in medicine. Fewer friends. Does not make friends easily. More sex desire. "I have enjoyed coitus with four women consecutively, have ejaculated on dates, and have masturbated one to ten times a month. I have never gone with a prostitute. . . . . No one is normal and I have been interested in (not afraid of) the abnormalities I have seen in myself. . . . . With the prospect of an M. D. after my name in a few months, and with some practcial knowledge possessed by a small part of the population, and with an attractive interneship ahead of me—with all these props I have more self-confidence."

60. Clear, frank, reliable, detailed. Extravert. Exaggerated old and created new neurotic tendencies. Headaches, abdominal pains, palpitation, nausea, myoclonus. Fear of rheumatic condition. Sensitive. "Aloneness." Nausea when under emotional strain. Absent minded when depressed. Fears instability will interfere with professional future. Self conscious. Day dreams of professional future and home. Socially unhappy. Dislikes to see patients nude before class. Prior to medicine was enthusiastic, friendly, rarely unhappy. Since medicine, has developed an emotional withdrawal. Thinks medicine has helped in correcting some infantile attitudes. Likes poor people more. Life is more meaningful. More tolerant and less dogmatic. Religion and science were in harmony. But medicine has influenced the individual unfavorably: produced asocial qualities, became aggressively individualistic, over-serious. Feels more inferior socially, but more self confident professionally. Finding happiness in sharing people's lives and helping them. Attempts at self-analysis. Religion strengthened. Intellectually and vocationally understands self better and has been helped. Yet emotionally more unstable. Markedly neurotic.

Group V is the group that at present possesses or gives a history of possessing such *serious instability* that we think their *future* adjustment is *precarious:*

101. Frank (occasional promiscuity), detailed, reliable, but at times irrelevant. Question: "How have your medical studies and experiences influenced your relationship to men and women and to society in general?" "Have they made life mean more or less?" Answer: "Churches are run by ministers who know no more of the truth and perhaps not as much as the scientist, who is perhaps better fit to interpret the Bible than the minister under the assumption that the writers were more fit than the present scientists." Question: "Have your ideals of womanhood or parenthood been in any way changed by your experiences in medicine?" Answer: "Evolution is to produce a better race. The picking of a mate must be at least as intelligent and desirable as a boy's mother or we get degeneration. The girl must likewise to reach a higher plane pick one as good or better than father. . . . . I would like to find a mate and get children, 3 or 4 at most, before I was too old to enjoy them, and educate at least 2 sons and even daughters in medicine, whether or not they ever practice." . . . . At times this individual states opinions without answering the question. At times hastily answers in negative where later elaboration and evidence contradict his answer. For example, he says in answer to one question that he has no fear of venereal infection. Later he says, "I have tried to cease all worry and fear about venereal infection." Or, "Have you become more conscious of either physical or mental defects since your study of medicine?" Answer: "No." Yet in answer to the question, "During your period of medical study has your physical condition remained the same, has it been better or has it been worse?" he replies: "Constipation has become worse." A fear of cancer of colon and some vascular disturbance because of purple nail-beds.

"The latter are probably the same as before because I wasn't thoughtful enough to notice them until second year in Physical Diagnosis course." Or, "Do you have difficulty making decisions?" Answer, "Not as a rule." Then in answer to another question he says he has become more timid, inadequate, and inferior. "No longer can I give one definite answer to a question." "I will not proffer an answer to which I know an answer as I dread the chance that it might be wrong." Not always clear. Had neurotic traits before entering medical school (over-sensitiveness, self consciousness, asocial, introvert, who was reserved and submissive). In addition had constipation, and cold, numb, tingling, cyanotic fingers. Medicine increased neurotic symptoms and developed worry about physical health and developed new symptoms. Studied medicine because he had many relatives in medicine and also because of dissatisfaction with other studies. Felt not well prepared for medicine and perhaps felt a family handicap. Believed his memory was not well trained, and thought too much was required to be remembered in medical school. Felt overwhelmed by the voluminousness of what was required. Got less sleep and exercise. Had more fatigue. Developed considerable restlessness. Become more timid, inadequate and inferior. Developed indecision, did not volunteer answers because he dreaded he might be inaccurate. Blushed more. Felt embarrassed and self conscious with superiors and embarrassed making gynecological and rectal exams. Ability to concentrate decreased. Worried and became depressed and was sent to a psychologist. Afraid to consult professors for fear, because of lack of knowledge, he would be advised to drop medicine. Thought he might discover something wrong with himself psychiatrically. Worried over alternating diarrhea and constipation and anxiety that he had cancer of colon. Relations with instructors not good, discouraged by attitudes of some instructors and felt that a professor purposely added to the difficulty of a course, so that one semester was almost unbearable. Unstable about sex and religion. "A healthy life is one of absent suppressed desires." . . . . Occasional promiscuity. . . . . "I have tried to cease all worry and fear about venereal infection." At times felt "doomed to failure." Social relationships still unsatisfactory. Worry over "religious adjustments which seemed all sex." . . . . "Church prevents much mental disease." . . . . "Nothing is lost on betting on God." Feels the need of better orientation in philosophy. Will enter general practise. Notwithstanding his increased instability he feels he has been benefited. "I believe I have become a better fellow." "I am not as interested in self glory but more in being accepted by the herd." "I am still an introvert, but have insight into the advantages of being an extravert and am trying to change over." Feels the need of better social adjustment. In summary, had some neurotic traits before entering medical school, became very markedly and seriously unstable in course of medical studies, acquired some insight into desirability of better social adjustments. Impression: Most difficult paper. Frank, but often either irrelevant or almost incoherent at times. Seriously unstable. Pre-psychotic.

31. Clear, definite, frank, reliable. Extravert. Definitely cyclothymic. Constriction in abdomen. Dyspnœa. Pain around heart. Pain in chest. Indi-

gestion. Feelings of fulness in rectum. Had several periods of depression. Somatic symptoms. Hard to concentrate. Great difficulty in making decisions. Tremendously attached to mother. Quarreling of parents influenced patient. Economic stresses. Felt his abilities limited by neurotic symptoms. Rarely alcohol. More at ease with it. Began to smoke in medical school. Would like to consult a psychiatrist. Worried about sex in depressions. No change in religion. Worried about insanity in family. Has acquired better understanding of his symptoms, and worries less since entering medical school. Emotional equilibrium more stabilized. More self confident. Summary: Somatic and emotional handicaps. Marked instability. Neurotic attacks before medical school. Influenced favorably and controlled by medical training. Periods of depression in medical school. Family stresses and quarrels, and attachment to mother influenced patient adversely. Gained understanding of self and problems in study of medicine. First depression at 15 years. Worried over illness of sister and mother. Periods of "emotional numbness and lack of interest." Seriously unstable.

This introductory paper has presented the formulation of the study, a discussion of methodology, our principles of classification and evidence for the reliability and value of our studies. The papers to follow will deal with a statistical presentation of data obtained, an analysis of our findings and certain conclusions.

COLONY GHEEL.*

By A. J. KILGOUR, M. D., Toronto, Ont.

During the summer of 1935 it was my good fortune to pay a visit to the small town of Gheel in northern Belgium. It is there that the now world famous mental colony is located; where thousands of patients are cared for and treated as they live in private homes in the community. Gheel claims the honor of having originated the "boarding-out system," and has a history that goes back to the latter part of the sixth century. In other places and in other lands this method has been adopted as an experiment or as an expedient because of overcrowded mental hospitals; but at Gheel it has been the only method used throughout all the years and has always met with satisfaction and success.

The story of the origin of the colony is closely linked to events that occurred in the life of Dymphna, the daughter of an Irish king, about the year 600 A. D. The father, according to the legend, was a pagan but the mother, a virtuous and noble character of great personal beauty, was a fervent Catholic and had been allowed to rear her daughter in the Catholic faith. It turned out that Dymphna, as she advanced in years, decided to consecrate herself to God, to become a bride of the church. Unfortunately, the mother died before this plan came to fruition and tragedy quickly followed. The king, for a time, was inconsolable over the loss of his wife; her graceful form and comely features were continually in his mind. After a period of mourning, however, he decided to try to find consolation in a second marriage and sent his agents throughout the land with instructions to find some lady resembling as closely as possible his deceased wife. The messengers, in spite of very diligent searching, returned to report complete failure. They had been unable to discover anyone with the desired resemblance. It was then suggested to the king that there was only

* For a more extended account of the operation of Colony Gheel by its director, see "The Care of the Insane Outside of Institutions" by F. Sano, M. D. in the Proceedings of the First International Congress on Mental Hygiene, Washington, D. C., May 5-10, 1930, Vol. I, pp. 379-391.—Editor.

one, his own daughter Dymphna, who bore the desired resemblance and he was advised to propose marriage to her. Incestuous marriages were common in the pagan nations of that time and the idea met with approval by the king. He proposed marriage to Dymphna. She was horrified at the suggestion but, knowing the strong will and impetuosity of her father, asked for time to consider before giving a final answer. The king consented to this and Dymphna, accompanied by her counsellor and friend, the venerable priest Gerebern, took advantage of the delay and fled from Ireland. They made for the continent; sailed up the river Scheldt and landed at Antwerp. From there they proceeded inland until they found a secluded spot in the forest near the river Neeth, about three miles distant from the present center of the town of Gheel.

The king was very angry when he learned what had happened and at once set out in search of the fugitives. They were traced to Belgium and eventually located in the vicinity of Gheel. The king, when he arrived there, tried to persuade Dymphna to return to Ireland with him but Gerebern rebuked him for his wicked proposal and counselled her to refuse. This enraged the king and he ordered his men to put the priest to the sword and this was done. Again the father tried to persuade Dymphna to go with him but she persisted in her refusal and scorned his threats. He became wild with rage and ordered his men to kill her also, but no one had the courage or hardness of heart to carry out the command and the result was that the king drew his own sword and killed her himself. This happened on the thirtieth of May, near St. Martin's chapel in the vicinity of Gheel. The traditional spot is marked by an oratory containing two statues representing the king in the act of killing his daughter. The bodies of Dymphna and the priest were buried by the inhabitants at a spot where afterwards the magnificent church of St. Dymphna was erected.

The story of these events spread abroad. The king was believed to have been insane and Dymphna's martyrdom was considered to have been a triumph of wisdom and chastity over the insane devils of lust and impurity. Because she had been able to resist the insane desires and demands of her father and to remain unsullied, the belief spread that God had granted her the privilege of being the special saint of the victims of mental maladies and soon the relatives and friends of the insane were bringing those so afflicted to



Administration Buildings, Colony Gheel.



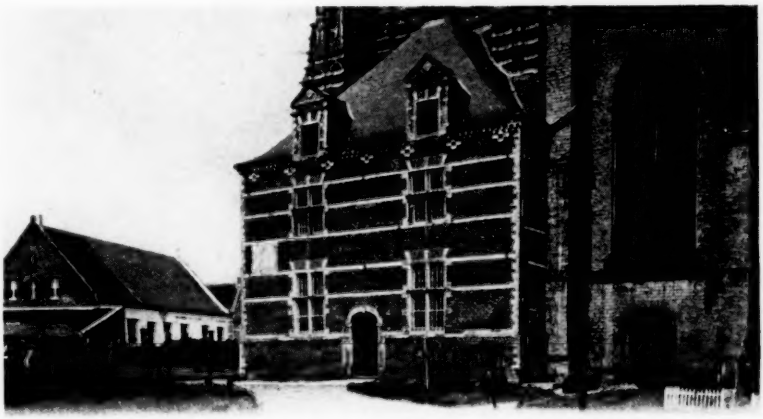
Main Hospital Group (1921-1925). Observation Pavillion for Men on the Left; Women on the Right.



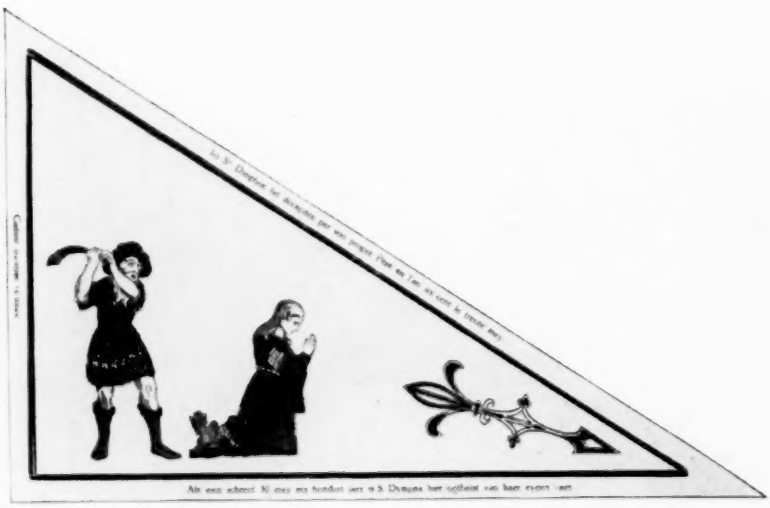
A Foster Family at Meal Time. Two Patients on the Left.



Interior of a Villa for Patients of the Upper Class.



Church of St. Dymphna Showing the Annex Where Mental Patients were Formerly Cared for. This Facade Dates from 1683.



Pilgrim's Flag, to be Fastened to a Short Stick Along the Short Side, Carried in the Annual Procession in Honor of St. Dymphna.



St. Dymphna and the Demoniacs. Church of St. Dymphna.

her tomb with the hope that she might intercede on their behalf. In the beginning the patients were cared for, over a nine-day-period, in a little dwelling called the infirmary, which was built against the church. During the novena of prayers they were blessed with the relics of St. Dymphna and prayers were said over them by the priest. In many cases cures occurred within the nine days and the patients would return home. In other cases the novena would be repeated and owing to the limited accommodation in the church annex the patients would be lodged for indefinite periods with families living near the church. This was the beginning of the "boarding-out system" at Gheel.

The church with its annex and the rooms in which the patients used to be cared for well repays a visit to-day. One room, in particular, has several beds that were formerly occupied by patients, and fastened to the wall near the old fireplace are samples of leather appliances that saw service when disturbed patients had to be restrained. There are volumes of old record books in a glass cabinet in this room also. The earliest written records pertaining to patients are dated 1693 and show the names, the towns from which they came and the names and addresses of the foster families to which they were sent. In the library of the church is a copy of a report dated 1247, which embodied the findings of a commission sent to Gheel by the Archbishop of Cambrai (France), who had heard rumors of the remarkable things transpiring there and desired to have authentic information. The result of that report was the canonization of Dymphna as a saint. A larger church was subsequently erected and on the fifteenth of May each year a procession through the streets of Gheel celebrates the event. In the main body of the church above the altar there is a beautiful gold screen on which is depicted the story of the legend of St. Dymphna. Among the relics which are carried through the streets, on the anniversary of her canonization, is a flat piece of reddish-brown stone which is said to have been taken from her tomb and which used to be applied to the necks of the patients as part of the treatment they received.

The Gheel of to-day is a pretty little town of brick and stone houses and shops, with interesting winding streets, plenty of trees and shrubbery and a population of about 20,000. It is in an agricultural district, about 25 miles from Antwerp. If, upon alighting

at the station one inquires the way, one is simply directed to call the colony by telephone; no number is necessary, so significant is this great institution in the little town.

For centuries at Gheel, just as in other parts of the world, the treatment of the mentally ill was directed almost entirely by the church. These were the years when mental disease was thought to be a spiritual matter and the sufferers thought to be possessed by devils. This was naturally so at Gheel because of the traditional origin and early development of the colony on a religious basis. In keeping with progress in other countries, as the true nature of mental illness came to be recognized, medical men gradually became associated with the work there also. During the fifteenth century, the population and the patients having greatly increased in numbers, certain laws were passed by the mayor of Gheel and the colony became partly communal as well as religious. At the time of the French revolution, patients were admitted into a small infirmary and into rooms of the municipal hospital. In 1852 the colony was taken over by the state and definitely placed under medical direction. Dr. F. Sano is the present medical director and has served in that capacity since 1919. He is assisted by a staff of seven other physicians.

The headquarters of the colony is situated across town from the railway station, at the fringe between town and country. It is a modest group of red brick buildings and consists, chiefly, of the administration offices and a 100 bed infirmary. The latter serves as a reception hospital for newly admitted cases and is also used for the treatment of the occasionally physically sick or disturbed patients that require closer medical care and supervision than can be given in the homes. Elderly patients that have become too feeble to be in boarding homes are looked after there also. It has in connection with it a surgery, dental clinic, dispensary and laboratory. About a quarter of a mile away from the main group of buildings there is a modern school where children of school age, who are patients in the colony, receive their education.

In July, 1935, the patient population was slightly in excess of 3000. With the exception of a few recent admissions and a few elderly feeble individuals of both sexes, this large number of mentally ill were living in private homes in the community. The colony is quite widespread, comprising not only the town of Gheel,

but a large area beyond, in all about 30,000 acres. It is divided into six districts with a physician in charge of each. He makes his rounds on foot or bicycle, visiting the new admissions daily for the first fortnight and the others at least once a month. The physicians have nurses to assist them in their sectors. No family is allowed to have more than two patients and where there are two they must be of the same sex. Many nationalities are represented; 45 languages or dialects may be heard spoken in the colony at the present time.

Patients enter Colony Gheel on either a voluntary or certificate basis. The first few days are spent in the infirmary while arrangements are completed for boarding out, and during this time a thorough medical and psychiatric examination is carried out. The finding of a suitable foster home is no problem at Gheel. There are more homes available than there are patients to go to them and there are still numerous applications, from families desirous of having patients, waiting the approval of the authorities. All applications are passed on by the mayor and chief coroner, and approval is only given after a very careful investigation. It has come to be recognized that the having of patients is an indication of high standing in the community. The family that has no patients and has never had any is very apt to be regarded with less respect. The boarding of patients is not restricted to any particular social level. There are lower, middle and superior class homes according to the quality of the accommodation. Undoubtedly the possibility of making some extra money has an appeal, but there is also the desire on the part of the inhabitants to share in a great humanitarian work which has been a part of the community life for centuries. The rates are reasonable, varying from about $15 a month for the lower class home to about $50 a month for a superior class one. All financial matters are arranged through the administration office and not directly between patient or relatives and the family lived with. Clothing and other such necessities are provided by the patients or their relatives. The institution receives a percentage of the rates charged (16 per cent) and this is found to be sufficient to cover upkeep, salaries, etc., but not capital expenditure.

The patients are not forced to work, but occupation is encouraged and plays a large rôle in therapy. There is abundant opportunity for varied and interesting occupation both in town and

country. No cash remuneration is given for work done, but a patient working will receive from the head of the family he lives with such pocket money, on Sundays, as others in the family are accustomed to receive.

As might be expected under such a system, problems do arise. Some patients become unduly disturbed and others develop tendencies that render them a menace in the community. In such cases the patients are brought back to the infirmary for a time and returned to the boarding-homes after the disturbances or tendencies have abated or passed off. If, after a period, boarding out is considered inadvisable, a transfer to one of the closed mental hospitals is arranged. There is also the occasional attempt at elopement, especially during the early days of stay in the colony. It is very seldom that a patient succeeds in getting entirely away because the district is so large that one may walk all day long and still be within its area. The restless wanderer is usually recognized by some one in the community and either returned to the home he has left or to the institution. It is rare for patients to attempt elopement after they have become adjusted to the new surroundings. As a rule, they become very happy and contented as might be expected where conditions are so much like the normal home ones. I saw a striking illustration of this attitude while I was there. I happened to be in the main office, talking with Dr. Sano, when a young woman, a mild schizophrenic, entered and announced her return from vacation. She had been visiting at her own home for two weeks, had made the journey there and back by train unaccompanied, and expressed genuine pleasure in being back in the colony again. She said that she was happier and more contented in the home where she was boarding than she was in her own home.

There are, of course, the problems related to sex, alcoholic indulgence and other such matters that one might expect to be unusually bothersome in a place of this nature. Incidents do occur but are relatively infrequent. The explanation is to be found in the careful supervision patients receive from the families with whom they live and also by the other members of the community as a whole.

I was able to visit many homes where patients were boarding. They were all in the vicinity of the hospital and included examples of the different grades. They were selected quite at random by Dr.

Sano as we strolled along and it appeared quite obvious to me that I was seeing things in the natural state and without any " window dressing " for a special occasion. It was most impressive ; the home atmosphere with its warm companionship ; the sense of absolute freedom and lack of restraint ; the contentment radiated by the patients. There was a decided contrast in the reactions of these patients to that which one meets with in even the best conducted closed institutions.

It may be impossible elsewhere to develop the boarding-out system exactly as it is conducted at Gheel. The religious element, which played such a big part in its early history, cannot be made to order. St. Dymphnas are uncommon to-day. The soundness of the principle of the boarding-out method has come to be more and more widely recognized however ; and it can confidently be said that with sufficient community interest and support family care as an adjunct to hospital treatment should be practicable anywhere. It is certainly economical for the state and provides a more normal and happier life for countless numbers of the mild-coursing and chronic types of mental patients.

CATALEPSY OR CEREA FLEXIBILITAS IN A THREE-YEAR-OLD CHILD.*

By A. BLAU, M. D., AND S. H. AVERBUCK, M. D.

The subject of cerea flexibilitas or catalepsy in children has received scant attention. Only sporadic reports have appeared in foreign medical writings while no reference to this condition is to be found in the American literature.

The purpose of this communication is to describe the occurrence of catalepsy in a three-year-old child, who except for some mental retardation was normal. The significance of this case lies in the circumstance that a consideration of this manifestation in a child may help throw light on the general problem of the nature of catalepsy.

H. S., a female child of three years and four months was admitted to The Hebrew Orphan Asylum, New York City, April 18, 1934. She was committed to the institution through the Children's Court because of her parents' inability to give her adequate care.

Family History.—The parents had been separated for three years. The mother was known to social service agencies and during the course of observation had been examined by psychiatrists at the Bellevue Psychiatric Hospital. She was judged to be a mental defective of low grade moron level and on the Army-Performance test attained an intelligence quotient of 49. She showed psychopathic trends, such as hysterical tantrums and irritability. The father likewise was judged to belong in the low moron group of feeble-minded with an intelligence quotient of 52 on both the Stanford-Binet and Army-Performance tests. An elder sister, the only sibling, was committed to Randall's Island because she was a high grade imbecile. Her intelligence quotient was 41.

Previous History.—The patient was born at normal term; delivery was uncomplicated. She was bottle fed from birth. There had been no serious illnesses. Relatives stated that walking and talking occurred in normal time. Very soon after her birth the child and her feeble-minded sister were placed in the care of an old aunt and uncle who lived amid very squalid circumstances. In this environment she grew to the age of three, learning to speak and to understand Yiddish only. At this time she was transferred to The Hebrew Orphan Asylum.

Examination revealed a rather obese child with flabby musculature. The head was large and there were frontal bosses. There was a general rachitic development with flaring ribs and a pot belly. The tonsils were

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moderately enlarged and adenoids were present. The heart and lungs were normal. A pilonidal sinus was present. Hypotonia of the knee joints with genu valgus existed. Vaginal smear, blood Wassermann and urine examination were all negative. The height was 35.5 inches (88.75 cm.); weight was 34 pounds (16.2 kilo.).

Because of the mental defective hereditary background and the fact that the contact with the child was inadequate on account of language difficulty, it was thought at first that the patient might also be defective. Her age and the language difficulty made an accurate mental rating impossible. However, the child was observed to be attentive, aptly imitative and able to carry out simple orders. It was felt that in all probability she possessed a dull normal intelligence and that she had been severely handicapped by poor training. Therapeutically, it was considered sufficient to place the child in the environment of normal English speaking children.

Soon after her admission to The Hebrew Orphan Asylum the patient developed chickenpox. On the first day of this sickness she was examined by one of us (SHA). While searching the body surface for chickenpox lesions it was noted that if the extremities were placed in any position the child maintained this posture until the position of the limbs was again changed by the examiner. The most unusual positions were maintained for many minutes—in fact until the limbs were actively replaced. This was a constant phenomenon and could be demonstrated repeatedly. During the next three weeks while the child was being treated for chickenpox, these cataleptic phenomena continued. After recovery from the varicella, which ran a typical and uncomplicated course, the patient was sent to The Mount Sinai Hospital for a complete neurological investigation to determine the cause of this remarkable symptom, *i. e.*, cerea flexibilitas, in an ostensibly normal child.

She was admitted to the service of Dr. Israel Strauss where she was studied from June 7 to July 2, 1934. During the hospital stay, the original observations were confirmed and the following data added. The gait and the associated movements were normal. The body musculature was flabby and there was a marked general hypotonia. Although the head was held in the erect position, the general posture was poor. The child appeared to see and to hear well. The position and movements of the eyes were normal and there was no nystagmus. The pupils were equal, regular and reacted to light and to accommodation. The corneal reflexes were equally active. The fundi were without change. The innervation of the face, jaw and tongue muscles was normal. All the tendon reflexes were brisk and lively. This hyperactivity was especially marked in the knee and ankle jerks. The plantar responses were poor though there was neither a Babinski sign nor any of the confirmatory pathological reflexes. The Romberg test was negative, and the sensory status was normal.

A cataleptic attitude was assumed by any of the limbs when it was raised. (Figures 1-4.) The extremities remained in the most awkward positions for considerable lengths of time and the child appeared unaware of the position of her limbs. They finally dropped slowly to the rest position without trembling. These postures very closely resembled those seen in catatonia and in hypnosis.

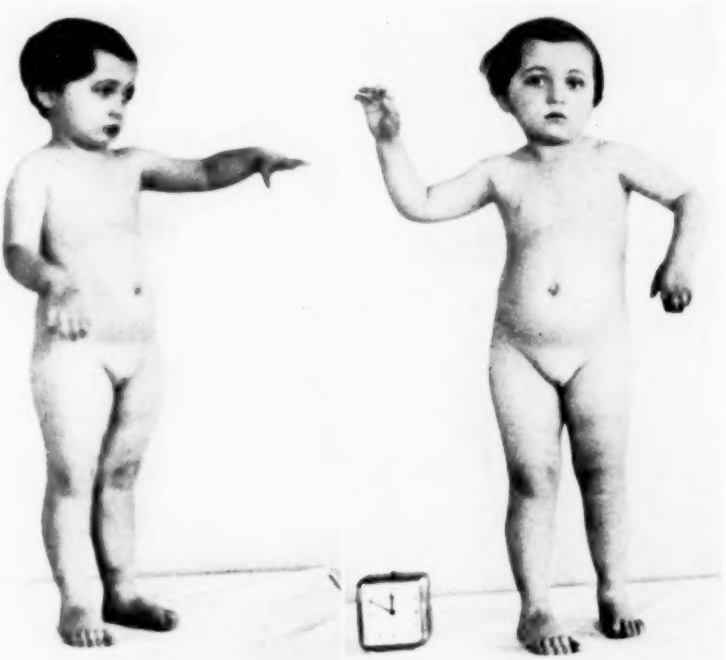


FIG. 1. FIG. 2.



FIG. 3.



FIG. 4.

The patient did not become well adjusted to the environment of the ward, and seemed happiest when left alone in her crib. She did not easily make friends with either the nurses or physicians. Appearing to understand what was said to her, she cooperated in the examinations. Her spontaneous speech was very meager, and she responded with the single word "yes" to all questions. In a simple memory test, she remembered the hiding place of a penny after ten minutes. In general, the intelligence was estimated to be somewhat below normal.

There was no fever throughout the duration of the hospital stay and the urine analysis and blood count were normal. The spinal fluid was clear and under normal pressure. The sugar content was 65 mgs. per cent, chlorides 725 mgs. per cent, and the total proteins 25 mgs. per cent.

After a four weeks' period of observation the child was discharged from the hospital. In the next six months she developed rapidly in the relatively normal environment of The Hebrew Orphan Asylum. She learned to understand and to speak English and became an active and intelligent participant in the games and other group activities of the Home.

On examination in October, 1934, three months after discharge from the hospital, the cataleptic attitude of the limbs could still be demonstrated. A psychometric examination at this time showed an approximate intelligence quotient of 84, (Binet) with a mental age of three years two months, and an approximate mental age of two years eleven months on the Merrill Palmer scale of mental tests.

In December, 1934, although still demonstrable, the cataleptic postures were not maintained for the same duration as before. When seen in February, 1935, the cerea flexibilitas had completely disappeared. When her arms were raised, contrary to previous observations, the child immediately allowed them to drop to her sides. Mentally, the child displayed excellent cooperation, interest and attention. The speech was fluent and much easier to understand than at the time of the previous examination. The psychometric tests showed a remarkable improvement. On the Binet test she attained a mental age of three years ten months and an intelligence quotient of 94, and the score on the Merrill Palmer scale was now on the three-year level. There was no doubt at this time that the child was of normal intelligence.

To summarize, the case is one of a three-year-old child, who had a strong hereditary mental defective background, and who showed the unique phenomenon of catalepsy. Except for this symptom and a suggestion of intellectual retardation, the examination revealed no abnormalities. During a ten months' period of observation, the catalepsy became gradually less marked, and an accompanying remarkable progression in the intellectual development occurred.

A search of the literature for reports of similar cases yielded only a few references to catalepsy in children. Under the title "Cataleptic Phenomena in Rachitic Children," Epstein [1] in 1896 described a group of eight children varying in age from $1\frac{1}{2}$ to $3\frac{1}{2}$

years, who showed cerea flexibilitas, especially marked in the lower extremities. All these children were rachitic and they had defective alimentation and poorly developed musculature. Their intellectual development also was markedly retarded. Because all eight children had rickets, the author thought that an etiologic relationship existed between the rickets and the catalepsy.

Recently, Surányi [2] published the report of a case which possesses similarities to our own. He made the statement that within his knowledge catalepsy in so young a child had never been described before. It seems pertinent to summarize the main features of Surányi's paper.

The patient was a three and a half year old female child who was retarded developmentally, both physically and mentally. She was a symmetrically underdeveloped child resembling a one-year-old, talking poorly and unable to stand or walk. The most striking feature of the case, however, was the maintained cataleptic attitude of the arms and particularly of the legs when they were placed in any position by the examiner. The complete neurological status was otherwise normal and all laboratory tests were negative. It was estimated that although the intelligence was below the normal for her age, it was, nevertheless, comparatively further advanced than the physical development.

Surányi did not attempt to explain this curious condition. He merely drew attention to the association of catalepsy and marked developmental retardation.

A more comprehensive report on the occurrence of catalepsy in children was published by Collin.[3] He found that if the extremities of normal children under 32 months of age were placed in any position, the posture could be maintained for extended periods of time (up to 45 minutes). The limbs were held immobile, and the subjects seemed disinterested in the unusual positions of their extremities. There was no evidence that the experiments were ever tiring or painful; they never occasioned a change of humor and could be repeated at any time without objection.

Children, however, from 32 months to 6 years of age displayed great difficulty in maintaining their limbs in the given positions. After a few minutes the extremities would begin to tremble and then to move. The attempt to hold the postures necessitated great effort and caused considerable fatigue. These subjects took the

first opportunity to resume a more comfortable position, often expressing their satisfaction with a sigh of relief. These older children, one might say, showed the usual adult reaction.

This striking symptom in the first group of younger children, Collin terms " resistance to fatigue." It is clear from his discussion that he considers this manifestation analagous to catalepsy as ordinarily seen in catatonia and in hysteria.

Collin found that this so-called " resistance to fatigue " coexisted with the other neurological signs seen normally in infants, *i. e.*, hyperreflexia and the Babinski phenomenon. In the course of normal development, coincident with the disappearance of these signs, " resistance to fatigue " gradually became less marked, and finally could not be obtained. Collin presented this manifestation as an additional characteristic of the physiological immaturity of the nervous system of the infant, and maintained that the gradual disappearance of these signs indicated evolutionary development of the infant's brain. Furthermore he ascribed a special prognostic significance to this sign in infants because it did not appear in a large control group of mental defectives. Inasmuch as it was the last of the objective neurological signs of infancy to disappear, its persistence indicated a physiological retardation of the development of the central nervous system. Thus, in cases where there was a slow development of the intellect, this sign might help to differentiate between a temporary retardation of physiological evolution and genuine mental deficiency. He illustrated this with a case of a $4\frac{1}{2}$-year-old child who because of mental backwardness was at first considered to be an idiot. However, cataleptic phenomena commonly seen in $2\frac{1}{2}$-year-old infants could be demonstrated. On the basis of this observation, Collin gave a better prognosis. In six months, his prediction was substantiated by a remarkable mental improvement which justified the opinion that the child was not a mental defective.

Discussion.

The cause of catalepsy is still a controversial subject. It is hardly necessary to discuss all aspects of the problem so we shall refer only to major contributions which are relevant.

A pertinent analysis of catalepsy is offered by Schilder.[4] He points out that it is characterized mainly by two factors: " a lack

of impulses to the muscles" and "a muscle tonus of a special type." His conception suggests the conjoined activity of two levels of the brain, *i. e.*, the cortex and subcortex.

The subcortical component of catalepsy consists of "a simultaneous innervation with the minimum essential tone of the agonistic and antagonistic muscle groups." This is undoubtedly a function of the striopallidal system. Furthermore, cerea flexibilitas is not infrequently a manifestation of the encephalitic syndrome, in which cases the most marked pathological changes are found in the subcortical grey masses. Tilney and Howe [5] describe a cataleptic form of epidemic encephalitis. An excellent review of the subject of the relationship between catatonia, catalepsy and basal ganglia disease has been offered by Jelliffe.[6] It is also true that a somewhat modified type of catalepsy has been observed in association with cerebellar lesions (Babinski).[7]

According to Schilder, the "lack of impulse" would seem to indicate that the psyche plays an important part in the genesis of cataleptic phenomena. In fact, the older psychiatrists, including Kahlbaum and Kraepelin [8] stressed the psychogenetic aspect. They considered catalepsy, as seen in catatonia, to be basically allied with the other signs of impaired volition. In connection with this volitional element, it may be recalled that catalepsy has often been observed in the most varied general medical conditions,[9] characterized by an impairment of consciousness. In such instances the disordered mental state indicates a functionally impaired cerebral cortex, with which part of the brain it appears catalepsy is closely associated.

Among the most interesting modern contributions to the subject of catalepsy have been those concerned with its experimental induction in animals with bulbocapnine. The physiological action of this drug, particularly in its relation to catalepsy, was first studied by DeJong.[10] Among other facts, DeJong demonstrated with a sensitive galvanometer that the muscles of the limbs of animals in bulbocapnine catalepsy were in continued tetanic contraction. On the basis of this observation, he suggested the theory that catalepsy was the result of tetanic contractions concurrently maintained in antagonistic groups of muscles. Thus he accounted for the sustained postures.

DeJong and Baruk (*l. c.*) in further investigations found that the action of bulbocapnine was not the same in all animals, and that it seemed to vary with the degree of development of the neocortex. This led to a systematic study of the effect of bulbocapnine in animals on different levels in the phylogenetic scale, *i. e.*, amphibia, reptiles, birds and mammals. It was determined that the frog, lizard, salamander, fish and turtle, animals which have only a rudimentary neocortex, did not develop cataleptic reactions. Imperfect phenomena were seen in birds, while the most complete catalepsy could be induced in mammals like the cat, mouse and monkey, which possess a highly developed neocortex. These observations were confirmed recently by Henry [11] who likewise concluded that "the extent to which catatonic manifestations may be produced is directly related to the degree of development of the neocortex."

Recently the action of bulbocapnine has been studied following surgical lesions of various parts of the brain in an effort to localize more definitely the site of its effect in the production of catalepsy. This phase of the problem has received the attention of Schaltenbrand,[12] Krause and DeJong,[13] and more recently in this country by Ferraro and Barrera [14] and Ingram and Ranson.[15] There has been no concurrence in the results of these various investigators and so the problem awaits further elucidation.

In spite of all these clinical and experimental observations, the significant fact remains that catalepsy may also be the result of pure psychologic influences. As such, it is regularly seen in the early stages of hypnosis [16] and occasionally in hysteria. The close relationship between sleep and catalepsy has been pointed out by Pavlow [17] and Schilder,[16] and Brissaud [18] noted the phenomenon in the half-awakened child. Furthermore, it may be induced in animals by rapid immobilization or other strong and unexpected stimuli (Hempelmann,[19] Coriat,[20]). Additional evidence is available in the recent knowledge that human catatonic stupor may be temporarily interrupted by various drugs. This has been demonstrated by Berger [21] and Jacobi [22] with cocaine; by Loevenhart [23] and his co-workers, with carbon dioxide inhalations and by Lorenz [24] with sodium amytal administered intravenously. Even bulbocapnine catalepsy has been abolished with carbon dioxide inhalations.

There is a definite trend in neuropsychiatry to regard the nervous system as a functional unit (Meyer,[25] Schilder [4]), and to explain its abnormal manifestations on a dynamic physiological basis. The experimental application of this principle has received its greatest support in the work of Pavlow and his school. During his classical investigations on conditioned reflexes, Pavlow frequently encountered the phenomena of sleep and catalepsy. In his explanation he states that there occurs " a complete inhibition confined exclusively to the cortex, without a concurrent descent of the inhibition into the centers regulating equilibrium and maintenance of posture (centers of Magnus and de Kleijn)." [26] The motor cortex is the one particularly inhibited, as other parts may continue to function in the presence of catalepsy. It is interesting that he offers a similar explanation for the catalepsy observed in urethane intoxication.[27]

DeJong and Baruk (*l. c.*) invoke an analogous conception of a physiological cortical disturbance to explain catalepsy. Their theory is based on observations of bulbocapnine catalepsy in animals with varying degrees of development of the neocortex (v. s.).

A number of clinical observers have independently supported this point of view. Wechsler [28] considered inadequate the interpretation that cerea flexibilitas was a simple involvement of the extrapyramidal system. He thought that it was rather due to a true cerebral condition or to an interference with cerebral function and consequently a liberation of uncontrolled unconscious activity. In a narcoleptic patient who developed catatonia, Miller [29] proposed a similar mechanism. He believed that catalepsy resulted from dominant extrapyramidal control owing to loss of cortical inhibition. He stated that forces outside the field of awareness must be regarded as neurological (even though they may be interpreted as symbolically infantile), as they are due essentially to the activity of the grey matter of the midbrain liberated from cortical control.

The dynamic conception that catalepsy results from the release of cortical inhibitory control over lower centers can be satisfactorily utilized to explain the phenomena seen in infants and in the child being presented in this paper. At birth the human infant may be considered partially decerebrate from a physiological viewpoint—because its cortex is incompletely developed. The last cortical function to develop is probably that of inhibitory control

of the activities of the lower and phylogenetically older centers. It is a fact that the early motor activity of the infant is primarily subcortical and strio-pallidal in character. The presence of the Babinski sign, the inability to walk and the deep tendon-reflex hyperactivity are objective neurological evidences of the cortical state of the infant. With the further mental and physical development of the child, there is a simultaneous recession of these signs. In the light of these considerations the occurrence of cerea flexibilitatis in a child who is somewhat mentally retarded is comprehensible, for in such a child there has probably been a physiological delay in the postnatal evolution of the cortical organization. This association between mental retardation and the presence of cerea flexibilitas is well illustrated in the children reported by Epstein [1] and Surányi.[2] Furthermore, our case and the one reported by Collin,[3] which were observed for a longer period, show a remarkable regression of the catalepsy simultaneous with a relatively rapid improvement in the intellectual development.

From the standpoint of the conception outlined above, cerea flexibilitas can be viewed in this case as a physiological (or more accurately a patho-physiological) process attending a retardation of brain development with associated functional dissociation of the inhibitory cortical pathways to the subcortical centers.

Summary and Conclusions.

The case of a mentally retarded three-year-old child who showed the unusual symptom of catalepsy or cerea flexibilitas is presented. Following a period of observation, the catalepsy gradually disappeared simultaneously with a progressive improvement in the intellectual status. It is suggested that this type of catalepsy is physiological or developmental in nature. The relationship to the general question of catalepsy is discussed.

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Comment.

TWENTY-SIX YEARS OF MENTAL HYGIENE.

The 26th annual meeting of the National Committee for Mental Hygiene was held at the committee headquarters at Rockefeller Centre in New York City, November 14, 1935. At this meeting the General Director, Dr. Clarence M. Hincks, reported upon the activities of the committee during the year. One of the outstanding items was the launching of a project for research in dementia præcox. This inquiry was made possible by securing the cooperation of the Supreme Council, 33° of the Scottish Rite Masons of the Northern Jurisdiction of the United States. Last year the Supreme Council made a grant of $15,000 to finance a preliminary survey, which should take account of research activities presently being conducted in this field. In consequence of this survey the Supreme Council has now appropriated a further sum of $40,000 to subsidize selected research projects in dementia præcox in universities, hospitals and clinics for a period of twelve months. The allotment and administering of these awards are undertaken by the National Committee. This is the first instance in which the National Committee has enlisted the active support of a private benevolent organization for research, and it encourages the hope that other groups may be moved to like action.

Another important piece of work initiated during the year deals with vital issues in the field of education. Attention was directed first to the problem of teacher selection and training from the standpoint of mental health requirements and the issue of the teacher pupil relationship. Exploratory studies were conducted at several representative centers in various states and the province of Ontario. This study was undertaken with the cooperation of such outstanding educators as Dean Herbert E. Hawkes of Columbia University, Dean John W. Withers of New York University, Professor Edward S. Evenden of Columbia and Dr. M. Ernest Townsend, Presi-

dent of the New Jersey State Normal School. It is to be hoped that funds may be forthcoming to carry forward this significant new undertaking in the mental hygiene program.

At the 26th annual meeting of the National Committee Dr. Stewart Paton of Baltimore, delivered a notable address on "Making War and Making Peace." In view of the present disturbed state of world affairs Dr. Paton's remarks were particularly timely. Having been one of the scientific advisers of the government during the World War he was obliged sorrowfully to recognize the fact that the world had not yet learned its lesson. He recalled the fact that during the World War it came to be well understood that a soldier to be effective in warfare must be sound and mature in mind as well as in body. The program of preparedness for warfare is however in striking and painful contrast with preparedness for peace. "We have been exceedingly indifferent and reluctant," said Dr. Paton, "about informing ourselves as to the emotional and mental preparedness required to be peaceful and human, and relatively little progress has been made in finding ways and means for the pacific settlement of either individual or international problems. . . . .

"Too many people are now engaged in trying to promote peace throughout the world who would not be competent to assist an individual in finding a peaceful solution of the problems that drive him to take refuge in a mental hospital."

Dr. Paton referred to the "emotional immaturity" which is the bane of our race and which too often appears to be reflected in political leaders in whose unsafe hands are sometimes lodged the destinies of peoples and nations. One of the hopeful signs of the times, however, is to be found in such movements as that of mental hygiene which Dr. Paton felt "can assist the American people in finding peaceful and rational solutions of their personal, business, industrial and political problems. . . . .

"One of the dangers at present is that technical science has supplied us with means for annihilating the human race. This catastrophe can be avoided however, by securing the active cooperation of science and art, and mental hygiene can show the way in which we can secure this cooperation that is so essential to progress in the art of living."

DR. CHENEY TO DIRECT BLOOMINGDALE HOSPITAL.

On January 26 Mr. Augustine J. Smith, Secretary of the Board of Governors of the Society of the New York Hospital, announced that Dr. Clarence O. Cheney had been appointed Medical Director of the Bloomingdale Hospital at White Plains, N. Y., to take effect on or about May 15, 1936. As the members of this Association know, the Bloomingdale Hospital is maintained as part of the New York Hospital. It is the oldest hospital in New York state for the exclusive treatment of mental patients, the royal charter of the New York Hospital dating from 1771, the initial reception of patients in the original institution in New York City from 1792. Dr. Cheney plans to retire from the New York State Hospital Service this spring upon the completion of 25 years of activity in that Service.

In commenting on Dr. Cheney's appointment, Mr. Smith said:

> At Bloomingdale Hospital Dr. Cheney will be engaged in continuing the New York Hospital's distinguished record of nearly a century and a half in the care of the sick, research and teaching in the field of mental disease. In 1792, one year after the opening of its first building, the New York Hospital began to accept patients suffering from mental disorders. In 1821 the Society established Bloomingdale Hospital in the open country on what is now the site of Columbia University, where it was for many years the only mental hospital in New York state.
>
> Since its removal to White Plains, Bloomingdale Hospital has restricted its work to the care of persons in whom the outlook for restoration from their mental illness is reasonably good and to research and teaching bearing on causes, cure and prevention of mental illness.
>
> The governors consider that they have been very fortunate in obtaining as medical director a man of such high ability and repute as Dr. Cheney, and look forward toward a continuation and advancement under his leadership of Bloomingdale Hospital's progressive record.

With the retirement of Dr. Cheney the New York State Service loses one of its ablest administrators. When Dr. Kirby retired as Director of the New York State Psychiatric Institute and Hospital, and as Professor of Psychiatry at the College of Physicians and Surgeons of Columbia University, Dr. Cheney succeeded to these positions. He has contributed materially to the prestige of the new institution and to the advancement of psychiatric training and research. As Chairman of the Board of Examiners of The Ameri-

can Psychiatric Association he has been a guiding influence in raising the standards of qualification for membership.

Dr. Cheney's successor at the Institute and at Columbia University has not yet been designated.

On behalf of his colleagues on the editorial board of the JOURNAL, the Editor would like to extend to Dr. Cheney most cordial good wishes in the new work and responsibilities he is about to assume.

C. B. F.

PROPOSED AMENDMENTS TO BY-LAWS.

Attention is invited to the following proposed amendments to the By-Laws of The American Psychiatric Association.

These will be acted upon at the ninety-second annual meeting to be held at St. Louis, Missouri, May 4 to 8, 1936.

Eliminate Article IV.

Re-number present Article V to be Article IV and have it read as follows:

Affiliated Societies.—When any state or provincial psychiatric society or psychiatric society of a geographic division in the United States or British America shall express a desire to become an affiliated society of The American Psychiatric Association, it shall submit to the Council of this Association a copy of its constitution and by-laws, showing the requirements for membership and a list of the members. If the Council recommends to the Association at an annual meeting that the said society be accepted and this recommendation be adopted by a vote of not less than two-thirds of the Fellows and Members registered and voting at the session at which the recommendation is submitted, the society making application shall thereafter be designated as an Affiliated Society of the Association. Societies designated as district societies previous to the adoption of this by-law shall hereafter be designated as Affiliated Societies.

It is recommended that the article to be designated as Article V be inserted in the By-Laws as follows:

District Branches.—When a group of not less than twenty of the membership of the Association residing in any state or group of adjoining states shall make application to the Council of this Association to organize a district branch of the Association and the Council approves, the Council may recommend to the Association at an annual meeting, the establishment of such a district branch, to be named according to the state or group of states where it is to be organized. The recommendation may be adopted by a vote of not less

than two-thirds of the Fellows and Members of the Association registered and voting at the session at which the recommendation is submitted: provided however, that no one shall become a member of the district branch who is not already in the membership of The American Psychiatric Association. Each district branch may elect its own officers, arrange its own programs of meeting and shall provide for its own expenses.

ARTICLE VI.

Section 2 of this article shall be changed to read: "A Section Chairman and a Secretary shall be elected by the Section. The Chairman shall be a Fellow of The American Psychiatric Association."

WILLIAM C. SANDY, M. D., *Secretary.*

December 27, 1935.

News and Notes.

CORRECTION.—In the September 1935 issue of this JOURNAL on page 495 in a notice of the activities of the Committee for the Study of Sex Variants occurs this statement: "Plans are far advanced for (1) a study of homosexuality as it exists among the members of the U. S. Marine Corps." The Committee for the Study of Sex Variants advises that in the submission of this notice the statement quoted should have read: "Plans are far advanced for (1) a study of homosexuality as it exists among the members of the U. S. Merchant Marine."

AMERICAN PSYCHOPATHOLOGICAL ASSOCIATION.—The twenty-sixth annual meeting of the American Psychopathological Association will be held in St. Louis, Mo., Thursday, May 7, 1936, in co-operation with The American Psychiatric Association.

The morning session will be a joint meeting with The American Psychiatric Association. If there are enough papers, and it is so desired, there will be round-table discussions in the evening.

Papers are necessarily limited to 20 minutes, and all titles must be in the hands of the Secretary, Dr. L. E. Emerson, 370 Commonwealth Ave., Boston, Mass., not later than the first week in February.

POSTPONEMENT OF THE SECOND INTERNATIONAL CONGRESS ON MENTAL HYGIENE.—The Executive Committee of the Second International Congress on Mental Hygiene announces that the Congress will be held in Paris in *July, 1937*, instead of in July, 1936, as previously announced. The Congress has been postponed because of the disturbed conditions existing throughout the world, and also because an International Exposition is to be held in Paris in 1937, which, it is assumed, many of the delegates will wish to attend.

The date in July, 1937, on which the Congress will open has not yet been set, but it will probably open on the 19th or the 26th of the month. The exact date of the opening session will be announced later.

Further information may be secured by writing to Dr. Edouard Toulouse, President of the Congress (1, rue Cabanis, Paris, France) or to Clifford W. Beers, General Secretary of The International Committee for Mental Hygiene (50 West 50th Street, New York City).

Conference for Teachers of Psychiatry.—The Division of Psychiatric Education of the National Committee for Mental Hygiene invites physicians engaged in the teaching of psychiatry in the medical schools of the United States and Canada to a three-day conference, at the Henry Phipps Psychiatric Clinic of the Johns Hopkins Hospital, Baltimore, April 8 to 10, 1936.

Correspondence is invited for the planning of the program, to assure brief communications of the patterns of local organization of material, staffs and aims and methods of teaching as developed, not so much for standardization as for a free presentation of the experience with what has been found most workable in undergraduate medical teaching. A maximum of 12 or 15 minutes for communications is suggested, with time for brief discussion—one day to be given to the actual organization of the courses under the various local conditions and the form and scope of the material considered essential in the various disease groups; another to the emphasis on the extent of time and staff allotments and on content of teaching of general and special psychopathology and methods of examination and organization of the material and therapy; and another day to the various ways of introducing the student of medicine to the consideration of personality problems, the teaching in general wards and in liaison work.

It is hoped that the presentations and discussions will be as concrete as possible, centering around the organization and actual work offered in your school during the present year. Since so much concerning the general organization of the teaching depends on local conditions the emphasis of the conference will be laid on the content, material and methods of teaching. The following headings are therefore suggested for our conference:

(1) The experience with out-patient teaching; in special and general hospital wards; methods of examination, organization of material and reports, and disposal of cases, including contact with the essentials of therapy; forms of clinical clerkships; provisions for autopsies and autopsy material and neuropathology.

(2) The most essential items emphasized in the teaching of the organic reaction types, the toxic-infectious disorders, the paranoic, schizophrenic and affective disorders, the psychoneuroses and the mental deficiencies and psychopathies.

(3) The range and organization of the basic teaching in psychobiology and general and special psychopathology; the equivalents of normal psychology and personality study, life periods, situation patterns and the essentials of psychopathology actually in use and available to the physician.

Preliminary correspondence on communications and concerning participation and desiderata is invited before January 20, to be addressed to Dr. Franklin G. Ebaugh, Director, Division of Psychiatric Education, The National Committee for Mental Hygiene, 50 West 50th Street, New York City.

REPORT OF THE NOMINATING COMMITTEE, 1936-37.—In accordance with the requirements of the Constitution the Nominating Committee for the year 1936 submits the following report:

For President: C. Macfie Campbell, Boston, Mass.

For President-Elect: Ross McC. Chapman, Towson, Md.

For Secretary-Treasurer: William C. Sandy, Harrisburg, Pa.

For the Council for one year replacing Dr. Kirby: Dr. A. A. Brill, New York, N. Y.

For the Council for three years: Clarence O. Cheney, New York, N. Y.; Samuel W. Hamilton, White Plains, N. Y.; William D. Partlow, Tuskaloosa, Ala.; C. M. Hincks, New York and Toronto.

For Auditor for three years: Max A. Bahr, Indianapolis, Ind.

EARL D. BOND.

ANNUAL MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS.—The twentieth annual session of the American College of Physicians will be held in Detroit with headquarters at the Book-Cadillac Hotel, March 2-6, 1936.

Dr. James Alex. Miller, of New York City, is President of the College, and has arranged a program of general scientific sessions of great interest to those engaged in the practice of internal medicine and associated specialties. Dr. Charles G. Jennings, of Detroit, is the General Chairman of the Session, and is in charge of the program of clinics and demonstrations in the hospitals, medical schools and other Detroit institutions. Dr. James D. Bruce, Vice President in charge of university relations, University of Michigan, is Vice Chairman of the Committee on Arrangements, and has in charge the preparation of an all-day program to be conducted at the University of Michigan on Wednesday, March 4. Dr. Walter B. Cannon, Professor of Physiology at Harvard University Medical School, will deliver the annual convocation oration on "The Rôle of Emotion in Disease." Dr. Miller's presidential address will be on "The Changing Order in Medicine." About fifty eminent authorities will present papers at the general scientific sessions, while clinics and demonstrations will be conducted at the Harper, Receiving, Ford, Grace, Herman Kiefer and Children's Hospitals, of Detroit.

Reprints of Journal Articles.—To meet frequent requests which are addressed to the Journal for reprints of articles which have appeared in its pages it has been decided, beginning with the January, 1936, issue, to stock a limited number of reprints of all articles appearing in each issue. These reprints will be supplied at nominal prices covering reproduction costs, and may be obtained by addressing Mr. Austin M. Davies, Executive Assistant at the head office of the Association, 2 East 103rd Street, New York City.

Dr. Kasanin Appointed to Michael Reese Hospital.—Dr. Herman Smith, superintendent of Michael Reese Hospital, Chicago, announces the organization on January 1, 1936, of a psychiatric service in the department of nervous and mental diseases. This service will be headed by Dr. Jacob Kasanin, formerly the clinical director of the Rhode Island State Hospital of Mental Diseases, and lecturer in psychiatry at Brown University and Smith College School of Social Work. Previously Dr. Kasanin was con-

nected with the Boston Psychopathic Hospital, Boston, Mass., where he was the senior research associate in connection with the investigation of the social causes of mental diseases under the auspices of the Rockefeller Foundation.

The psychiatric service at Michael Reese Hospital will have an out-patient department as well as a small number of beds in the hospital, and also in the Sarah Morris Children's Memorial.

AMERICAN PSYCHOANALYTIC ASSOCIATION.—This association, founded in 1910, at its Boston meeting in December adopted a new constitution. The American Psychoanalytic Association, now a Federation of the American Psychoanalytic Societies, comprises the Boston Psychoanalytic Society, the Chicago Psychoanalytic Society, the New York Psychoanalytic Society and the Washington-Baltimore Psychoanalytic Society.

The following officers were elected: Honorary President, A. A. Brill, M. D. (New York); President, C. P. Oberndorf, M. D. (New York); Vice-President, Isador H. Coriat, M. D. (Boston); Secretary, Ernest E. Hadley, M. D. (Washington, D. C.); and Treasurer, Leo H. Bartemeier, M. D. (Detroit).

Book Reviews.

PELLAGROIDE DERMATOSEN AN GEISTESKRANKEN. MIT BESONDEREM HINBLICK AUF DAS VORKOMMEN SOLCHER BEI SCHIZOPHRENEN UND MIT BEITRÄGEN ZUR BELEUCHTUNG GEWISSER ÄTIOLOGISCHER UND PATHOGENETISCHER VERHÄLTNISSE BEI DEMENTIA PRÆCOX UND PELLAGRA. By *Paul J. Reiter* and *Jakob Jakobsen*. (Levin & Munksgaard, Kopenhagen; Georg Thieme Verlag, Leipzig, 1935.)

The occurrence of pellagra and pellagra-like manifestations among inmates in mental hospitals has been of considerable interest to psychiatrists and students of the problem of pellagra since the classical description of the condition by Casal in 1762. Casal observed pellagra particularly often among alcoholics. Landouzy in 1863 systematically scrutinized the institutional material and reported 157 cases of pellagra among 25,015 patients in 47 psychiatric institutions in France. He thought that pellagra among the mentally sick was due to faulty hygienic and nutritional conditions prevailing in mental hospitals and not to mental disease of the patients. He, of course, based his opinion on the then prevailing maize theory as the etiology of pellagra, a theory which was advocated by Massari in 1810. Reiter and Jakobsen have investigated the problem of pellagra in psychoses, especially in dementia præcox. Their own material consisted of 955 inmates in a psychiatric hospital. Among them were 47 cases with alcoholic psychoses, 29 with senile psychoses, 43 psychopaths, 31 epileptics, 110 cases of general paralysis, 81 cases with manic-depressive psychosis, 15 cases with chronic encephalitis and 589 dementia præcox cases. The examination of this material revealed pellagroid dermatoses in 182 cases or in 19.3 per cent. The encephalitic group showed the highest percentage of 60, while in the schizophrenic group the percentage was 21.4 and in the manic-depressive group 8.6. Of the entire group only 14 cases were considered as true instances of pellagra. The authors made a control study of 881 inmates in penal institutions, where the living conditions are approximately the same as in the mental hospitals with the possible exception that the dietary regimen, especially as to the vitamins content, is probably of lower quality in the penal institutions. In the control group pellagroid dermatoses were found in 4.5 per cent as compared with 19.3 per cent among the psychiatric cases. It is of interest that other types of dermatoses were more prevalent among the prisoners than among the insane.

Of the 14 patients with pellagra 12 belong to the dementia præcox group, 1 is a case of manic-depressive psychosis, and 1 is an encephalitic. The case with encephalitis showed the typical extensive polymorphous type of dermatosis without, however, the other symptoms of pellagra. The authors feel that this type of dermatosis, which one sees frequently in encephalitis, has no relationship to true pellagra, and that the condition is of central origin and probably due to a lesion in the hypothalamic region.

Two cases of schizophrenia showed the same type of skin lesion and the authors think that in all probability the condition is also of central origin.

The pellagroid symptoms in the other 10 cases of schizophrenia and in the case of manic-depressive psychosis are probably of the same origin as in the previous group but may also be the expression of a true pellegra of enterotoxic origin or avitaminosis. The last possibility, the authors feel, should be considered especially in the case of the manic-depressive patient who went through a severe gastro-intestinal illness. The authors believe that the pellagroid dermatoses in organic reactions and in the schizophrenias are of central origin and that the possibility of involvement of the endocrine apparatus in these conditions should be kept in mind. The dietary regimen of the patients, according to the authors, has no direct relationship to this manifestation; they feel that the diet contains a sufficient amount of vitamins even in instances when the patients refuse to take sufficient nourishment and have to be tube-fed for a long time. Severe disturbances of resorption may possibly be responsible for the appearance of severe pellagroid symptoms and eventually of true pellagra, particularly in cases of schizophrenia. Gastric analyses of 112 cases with pellagroid dermatoses showed in a large number of instances gastric hypersecretion, hypochylia, achylia and especially diminished pepsin content. In 86 cases of schizophrenia the blood examination showed changes frequently seen in true pellagra such as lymphocytosis, eosinophilia, and tendency to anemia. In other cases with pronounced signs of pellagra neurologic symptoms were found in the form of extrapyramidal disturbances of motility and evidence of what Adolf Meyer has described as "central neuritis." Similar manifestations were observed by the authors in cases with intestinal disturbances due to dysentery without evidence of skin lesion. The authors feel that this syndrome is a reaction of the diencephalon to a severe enteric or hepatic intoxication, whether it occurs in dysentery, dementia præcox, or pellagra. Pellagra, according to the authors, may cause mental manifestations and may influence considerably an already existing psychosis. In cases of dementia præcox pellagra may produce a transitory clearing up ("lucidity") or transform a paranoid reaction into an euphoric amentia-like state. In a case of manic-depressive psychosis with pellagra the authors observed an "extra-pyramidal catatonic syndrome" with deterioration, and the authors, therefore, feel that pellagra may cause dementia in endogenous types of psychoses.

The authors offer an interesting approach to the etiologic and pathogenic possibilities in pellagra occurring in schizophrenia. The monograph is illustrated with photographic reproductions of the skin lesions and interesting case histories are cited.

J. NOTKIN.

THE RANGE OF HUMAN CAPACITIES. By *David Wechsler*. (Baltimore: The Williams and Wilkins Company, 1935.)

The purpose of this book, as conceived by the author, is both comprehensive and optimistic in tenor. It embraces an attempt to summarize our

knowledge regarding individual differences, "more specifically those aspects of it which bear on the limits and range of human capacities, and to draw such inferences from the data available as the facts seem to warrant." The implications of some of the conclusions are regarded as having "rather important bearings on a number of social questions with which thinkers all over the world are at present attempting to grapple. Outstanding among these, perhaps, are the status of democracy, the problem of technocracy in relation to human efficiency, and now, in a larger sense, the suggested attempts at social reorganization on the basis of abilities and needs as contrasted to geographical distributions and caste systems." While the author has not attempted to answer any of these questions, he believes that "the material contained in this book should enable those who are concerned with them to approach the subject in a more scientific and . . . . more hopeful way." (p. ix.)

So sweeping a purview, even though somewhat carelessly outlined in the preface, is likely to arouse the reader's interest and expectation. In the introductory chapter, the author endeavours to re-state the major purpose by asking a number of questions which the book attempts to answer—thus seeming to give a less discursive and more concrete reason for the publication. The mathematical ability of an Einstein, the scientific intuition of a Pasteur, the poetic gifts of a Shakespeare, compared with the correlative abilities of the average man, suggest that the range of human abilities is well-nigh limitless. "Are these seemingly large differences real or only apparent? Do men really differ so enormously from each other, or are these examples of genius merely isolated occurrences, . . . offering us but little information as regards the capacities of mankind as a whole? If the differences cited are so great as the extremes would indicate, do they hold over the entire span of human capacities, or are they met with only in certain special capacities . . . . Is there a limit to human variability, and . . . . does the limit differ from one trait and ability to another, or is it equal in all directions?" Answers to these questions will, the author believes, direct our decisions regarding democracy or rule by experts, uniform versus sliding wage in industry, and many other political, ethical and educational matters.

In approaching these questions, certain difficulties arise—particularly in connection with the meaning of "capacities," the problems of measurement, and the arranging of conditions so that measures of different traits will be comparable. These difficulties are discussed at some length. The main result of the discussion is that comparatively few of the reported studies on "mental measurement" can be used; the most suitable results come from the measurement of physical characteristics and physiological function.

Having selected his data, the author then proposes to examine the Range by comparing the 999th and 2nd cases in every sample of 1000. The extremes are thus excluded as being outside the realm of general human variability; and a more representative variability ratio is thus obtained. When this procedure is followed, the ratios are such that they can be expressed by very small numbers. The most efficient individual in any given trade, for example, would be able to do only about twice as much as the least efficient member of

his group; for body temperature, the mean ratio is 1.03:1; for linear traits, 1.30:1; for motor capacities, 2.23:1; for perception and certain intellectual abilities, 2.58:1. The author propounds further a theory of multiple factors and tries to show that the differences in degree of variability among the different human traits are related to the influences or factors which underlie the degree of complexity of these abilities; but his data are inadequate to do more than suggest such a theory.

The author agrees, of course, that a phenomenon such as "genius" is important to human progress, even though he has purposely omitted the extremes in calculating the range-ratios. His main conclusions, however, center around the demonstration that range of talent appears remarkably small when evaluated by this means.

A critique of the book would demand a great deal of elaboration. Much technical material is involved. The logic of measurement is basic to his whole thesis. Undoubtedly the discussions presented suffer from too little systematization—so necessary when the scope of the discussions is extremely wide. Further, the main point of the argument could be made more incisive if the questions raised at the beginning were more definitely answered at the end; and if the bearing of the thesis on social and other questions were indicated in more than a superficial way. The whole book is a strange mixture of erudition and error; (π is erroneously defined, for example, in at least two places); of sweeping generalization and careful attention to detail. One detects a motivating interest in social uplift, and at the same time a strange avoidance of many of the most pertinent points. Even though the author acknowledges that a slight difference (as statistically or conceptually expressed) may be enormously significant in its effect, he argues somewhat academically in order to bolster up his thesis of human mediocrity and uniformity. Ratios expressed by small numbers may suggest comparative homogeneity among human beings; but if the same care had been exercised in examining the bases of comparing these ratios with significant social variability, as was evidenced when "different human traits" were discussed, the argument of the book might have been entirely changed. It is a stimulating book; but too comprehensive to be consistently good.

W. Line,
University of Toronto.

Problems of Psychiatry and Psychopathology. *By many contributors.* Prof. S. N. Davidenkoff, Editor-in-Chief. Dedicated to Prof. N. P. Bruchansky upon his completion of 20 years' activity in the psychiatric field. (Moscow: U. S. S. R., 1935.)

This is a volume of over 700 pages consisting of 59 contributions on various phases of psychiatry by colleagues and former students of Prof. Bruchansky. In a preface the Chief Editor refers to it as a collection of essays in which is reflected the contemporary psychiatric thought of the Soviet Union in all its various ramifications.

Reports have reached us from time to time of new and startling developments in the field of psychiatry in the Soviet Union. We hear of a great

reduction, almost a disappearance, of manic-depressive psychoses; of closing of mental hospitals, or their conversion to other purposes, for lack of mental patients; of an almost total elimination of prostitution, associated with a reduction of syphilis and, with it, of neurosyphilis; of unprecedented success in dealing with the problems of alcoholism and drug addictions; of similarly unprecedented success in dealing with problems of juvenile delinquency and adult criminality; etc. We turn, therefore, with special interest to this volume for more concrete information on these matters.

Is there acceptable statistical evidence in support of the above-alleged achievements? If so, are they to be attributed to the new social and economic regime, or to new practices of institutional administrations, or to scientific progress in the field of psychiatry?

The volume before us throws but scant light on the above questions which, from the western point of view, would seem to be of the highest interest; as it has evidently been compiled without reference to such questions.

One gains distinctly the impression that the status of psychiatric science in the Soviet Union lags behind that of Western Europe and this country. At best, in this collection, one finds descriptions of special observations, as, for example, that of a characteristic type of delirium occurring in cases of typhus fever, generally on the eighth day, which seems to be a day of a sort of crisis in that disease.

Most of the contributions abound in unrestrained speculation such as, unfortunately, has characterized psychiatric papers everywhere. However, the tendency toward such speculations is evidently dwindling in the western part of the world, whereas it seems to be still in full bloom in the Soviet Union. For the bulk of fundamentals in psychiatry, such as they are, the Soviet workers in the field resort to borrowing from Germany and France.

The volume, nevertheless, contains at least two contributions of outstanding practical interest, namely, those dealing with the care and treatment of alcoholics. This matter is reported in sufficient detail to present a fairly comprehensive view of the underlying plan.

The first feature of the plan is that no case of alcoholism which is sufficiently marked to interfere with productive activity in industry, agriculture, or civil service, is left without medical attention.

Psychiatric investigation and treatment is first undertaken in ambulatory clinics established throughout the country either especially for that purpose or as departments of general clinics. The patient, in the meantime, continues on his job.

If this fails, the patient is transferred to another type of ambulatory clinic which possesses in addition to the clinic equipment and personnel, a group of shops, or small industries, or truck gardens with a staff of vocational instructors. Occupational therapy is used under psychiatric direction but with full compensation for the work accomplished by patients.

If this, too, fails, the patient is transferred to a special hospital in which he is interned for an indefinite period. But here again the work cure represents the principal feature of treatment, and the institution has not only its own shops and other facilities for that purpose, but also an affiliation with

neighboring industries or collective farms where selected patients are employed.

Psychotherapy is also practiced in connection with alcoholism, but in a peculiar way. The object of both ambulatory clinics and hospitals seems to be to separate the patient from his alcoholic associates and to put him in the midst of a social environment where alcoholism is in bad taste.

Cultural activities, theatre, and other diversions are provided to fill the waking hours.

The papers in the book which deal with this matter are in modest and conservative tone and are devoted rather to outspoken criticism of the shortcomings and imperfections of the plan of operation and to suggestions for its further improvement. This plan was initiated in Moscow in 1924 and has since been introduced throughout the country. Eleven years is not a long time for such a development. It would seem that the psychiatrists who are connected with it are justified, under the circumstances, in looking forward to a definite disposal of the bulk of the problem of alcoholism in the Soviet Union.

AARON J. ROSANOFF.

OUTLINES OF GENERAL PSYCHOPATHOLOGY. By *William Malamud, M.D.* (New York: W. W. Norton & Company, 1935.)

According to the author, "The purpose of an outline of this type is to present the general features of the subject. It lays no claim to an exhaustive discussion of the various ramifications of the specialized investigations in the field of psychopathology."

The most interesting part of the book is the author's attempt at a new formulation of personality structure. He assigns to the personality three qualities: "self-assertion," "accretion," and "ratiocination." Under these three headings the author describes various personality traits. After this there follows a discussion of some of the disturbances of these three functions.

There are obviously any number of ways of formulating personality, and, in the reviewer's opinion, such formulations are to be looked upon merely as tools. If a new formulation enables us to do something with the study of personality which the older formulations have not allowed, or if it enables us to do something better than before, then it should be classed as a desirable tool and should be substituted for the older formulation. As to whether the author's formulation achieves this purpose, it is perhaps too soon to pass any judgment, although the reviewer is somewhat skeptical. It seems, however, that the author should be congratulated upon his attempt, and that all such efforts are well worth while and should be encouraged.

The material of the book is arranged in orderly fashion. First there is a general discussion of the subject with attempts at defining and limiting psychopathology. Following this are some 200 pages devoted to description of terms, followed by about 80 pages of discussion of dynamics. Then comes a discussion of personality with the author's new formulations of personality structure and the discussion of personality deviations in terms

of this new formulation. There will always be controversy as to the amount of space allotted to any particular topic. The reviewer would make the criticism that the amount of space devoted to description of terms should be reduced and additional space given to dynamics. Certain subjects are not given adequate discussion, *e. g.*, hypnotism is dismissed with 20 lines.

The whole book gives the impression of being somewhat hastily written without careful revision, and contains many inaccuracies which should have been corrected before printing. As representing a few examples of this, the following specific criticisms are given.

The reviewer does not consider that the definition of psychopathology is adequate or satisfactory. Writers like Bernard Hart have admitted the impossibility of making a clear-cut distinction between the normal and abnormal, whereas the present volume seems to find no difficulty in doing this and gives a definition which superficially is satisfactory, but which, on deeper study, seems inadequate.

In the discussion of intelligence tests we are told: "The I. Q. of the normal person varies between the limits of 90 and 105." This follows a statement of mental age of 16 as representing an intelligence quotient of 100. While one might argue that, for the child under 16, this would be normal intelligence, it is not in accord with the findings for adults which indicate that average adult intelligence is a mental age of 14 years and an intelligence quotient of 87 (using 16 years as a basis).

We are also told that there are two types of persons whose intelligence is below normal: "(1) That of the congenitally feebleminded person whose lack of intelligence is due either to a faulty original endowment or to some disease process which has occurred in early infancy." This sentence is perhaps an excellent illustration of the careless manner in which the book is written.

Again we are told: "The psychoneurotic woman may, in the manner of Lady Macbeth, protest too much, may go to great lengths in telling us how much she is in love with a person whom in her obsession she wishes to murder." A careful perusal of Macbeth gives the reviewer no evidence of such behavior on the part of Lady Macbeth. Presumably the author had in mind the quotation from Hamlet—"The lady doth protest too much methinks."

The discussion of compulsive acts does not seem to the reviewer to conform with the general opinion of psychiatrists as to what should be called a compulsive act. To speak of organically determined behavior, such as the oculogyric crises, as a form of compulsive behavior, and to include certain habitual and accustomed acts, such as the posture in which one lies when going to sleep, gives a meaning to this term which is rather different from the way the term is usually used.

The discussion of Kretschmer's physical types seems somewhat at variance with the material found in Kretschmer's book, *Physique and Character* to which the reader is referred at the beginning of the discussion. According to the writer Kretschmer divides persons into four physical types: (a) "the pyknotic" (*sic*!), (b) "the athletic," (c) "the leptosome," and

(d) "the dysplastic (hypoplastic)." We are also told: "The *asthenic* type is essentially similar to that of the leptosome, but is probably somewhat more extremely narrow in its measurements." It does not seem to the reviewer that this is a correct presentation of Kretschmer's views, and it seems worth while to quote from Kretschmer's book the following statement: "With the methods we have discovered three ever-recurring principal types of physique have emerged from our clinical material, which we will call 'asthenic,' 'athletic,' and 'pyknic.'"

Any discussion of psychoanalytic formulations is bound to stir up controversy. The author states that he is giving "a brief presentation of only the most essential features," and refers the reader who desires "a thorough knowledge" to four books, one by Karl Abraham and three by Freud. One would assume, therefore, that unless it were otherwise stated the presentation would follow the orthodox views of Freud. Apparently, however, the writer makes a number of changes but in only one instance does he state that such a change is being made. The presentation of the sexual development of the child is certainly not according to Freud and there is a distinct soft pedalling of Freud's sex theories.

The glossary does not seem to be particularly well devised and the selection of words for definition gives the impression of a very hurried, uncritical selection. Presumably the book is intended for persons with average intelligence and education, yet some extremely simple words are defined and others equally important, or slightly more difficult are left out. Some of the definitions are quite incorrect, others inadequate. We are given: "Par—a prefix denoting disturbed function": whereas the Greek prefix is *para*. We are told that a multigraph is "an apparatus which permits simultaneous records of the pulse, blood pressure and respiration"—obviously intended for polygraph, but an example of the inaccuracies which have crept into the book. The reviewer does feel that to define "coma" as "loss of consciousness," "delusion" as "a false belief," or "psychoanalysis" as "a method for the treatment of certain types of mental disease" is to give an inadequate or unsatisfactory definition of these terms.

There has been a definite need for a book which will cover the subject of general psychopathology in a clear, simple fashion so that it would be suitable as a textbook for medical students, social workers, and other students. With a knowledge of the author's broad experience and wide interests, the reviewer had hoped to find in this book the answer to this demand. After going through the book, however, the reaction is rather one of disappointment. The book has many good features. It contains a great deal of valuable material, but on the whole the reviewer would say that the book does not measure up to what the author is really capable of producing, and that, in its present form, it is too loosely and inadequately written to be satisfactory. A careful revision, however, should greatly improve it and might bring it to the level of a satisfactory reference book on the subject.

KARL M. BOWMAN.

OBJECTIVE AND EXPERIMENTAL PSYCHIATRY. By *D. Ewen Cameron, M.D.* (New York: The MacMillan Co., 1935.)

This unusual book is composed for the greater part of summaries and well written discussions of the results of laboratory studies on psychotic patients. These, with the appended bibliographies, may be useful in providing a quick orientation in the fields considered. But the book is not a mere compilation of the literature. It is a treatise on methodology. The purpose, as announced on the dust cover, is "to bring together in readily accessible form the natural evolution of a science toward quantitative methods, toward experimentation as the main method of fact finding."

The author's meaning is made clearer in the detailed discussions, where instrumental quantitation is repeatedly and emphatically stressed and direct clinical observation systematically treated with disdain because of "the serious errors of conventionalisation and projectionism which permeates (*sic*) the observational method." In his preface the author states that "we are now in a fair way to realize our dream of analyzing human behavior objectively, dispassionately, and, above all, of being able to predict and control." That the book fails to substantiate this ideal will not surprise readers acquainted with the present status of psychiatry. The natural evolution of psychiatry toward quantitative methods is still an idealistic dream or a superficial pretense rather than an accomplished fact.

In the reviewer's opinion, the more significant and effective portion of this book is in the first two chapters, which present, under the rather banal title of "Experimentation and Quantitation in General," some radical but well-founded criticisms of conventional psychiatric assumptions. Terse statements are difficult to find, but these quotations from pages 18 to 22 indicate the general drift:

"With the exception of a few schools of thought, the main effort in psychiatry is devoted to a projectionistic study of consciousness . . . . On the false premises that consciousness represents a short cut to the study of mentation we have erected an etiological system, the authenticity of which is to say the least doubtful."

"We find few reaction types . . . . in which 'mental stress or strain, worry, anxiety, tension or conflict' are not cited as the etiological factors"; yet, "when bereavements, separations, financial loss, fear, and conflict involve large numbers of people . . . . no increase in the number of persons admitted to mental hospitals is to be observed."

"Those things are observed and those phenomena are inquired after that are already considered to form a part of the orthodox concept of the reaction under observation. In this way erroneous concepts become more and more firmly entrenched. . . . . The patient too has conventionalized his reactions."

To remedy this state of affairs the author offers the methods of experiment and quantitation. This proposal will probably meet no aggressive opposition but rather a weary indifference, as a sophomoric counsel of perfection.

It is cause for regret that the author does not advance more positive suggestions for the improvement of clinical observation, for which task he should be qualified by his training and insight. J. C. WHITEHORN.

MENTAL HEALTH—ITS PRINCIPLES AND PRACTICE. By *Frank E. Howard, Ph. D.*, and *Frederick L. Patry, M.D.* (New York: Harper and Brothers, 1935.)

Here is a book which leaves the reviewer in conflicting states of mind. It is a long book and it purports "to help the student and professional worker (educator, physician, nurse, social worker, lawyer, clergyman, etc.)" Mental hygiene is a large subject and one which, no doubt, cannot be covered in any thorough way in a short book and yet we could wish for a little more in the way of terseness. And we wonder whether mental hygiene is not so broad a subject, with so many phases, that it is impossible to write a general book which will be helpful for anyone no matter in what phase of it he may be interested.

The early and more general chapters contain a great deal of valuable material with suggestions for further reading at the end of each chapter. There are also lists of questions after each chapter. These, we suppose, suggest the text book possibilities of the volume but we are not quite clear as to just what groups would find it satisfactory in this regard. There is great need of text books in mental hygiene but it is at least open to question whether the present book satisfactorily meets the need.

Several chapters are devoted to the psychoses, the psychoneuroses and behavior problems and we are introduced by the authors to the psychobiological point of view of Dr. Adolf Meyer. But here again we feel that in these chapters the authors display some confusion as to just whom their book is intended for. If the book is intended for psychiatrists, then the use of a great number of Greek terms which Dr. Meyer has coined is perfectly proper and makes for clarity and precision. But if the book is chiefly for those not trained in psychiatry we think nothing is gained and much lost by the use of such terms.

While a good deal is said as to how an understanding of the patients' problems may be gained by the use of histories, rating charts and other devices, it would seem that more might have been said on the treatment to be applied after such knowledge has been acquired.

The usefulness of the book would have been increasd by a more complete index.

H. B. SPAULDING,
Toronto.

WAYWARD YOUTH. By *August Aichhorn.* (New York: The Viking Press, 1935.)

With the protagonists of Freud and his methods still able to produce a high state of emotion in those who hold other views it is a pleasure to read a book by a Freudian practising in Vienna which, we feel, will offend non-Freudians very little if at all.

The author undoubtedly has personality, which he is able to convey to his readers even through a translation. We read his book and we look at his photograph on the dust cover and are convinced that here is a man who

would be helpful to delinquents and patients whatever school of psychiatric thought dictated his methods. The author's ability all through the book to make his meaning clear through illustrative case material results in a very readable and interesting volume.

The early chapters deal generally with the causes of delinquency. We are given, in case form, the methods used in analyzing symptoms and getting to the root of cause of delinquent behavior. We gather that a complete analysis is made only in the cases of those neurotic dissocial delinquents who are so incorrigible that no group will associate with them. The method used is rather that of the interview with the psychiatrist utilizing Freudian theories and concepts to interpret behavior and indicate treatment. There is a chapter on the *transference* which is regarded as of great importance and which often seems to be achieved with almost lightning rapidity. One wonders whether Dr. Aichhorn's *transference* is anything more than the ordinary *rapport* which all psychiatrists strive for.

The chapters on his methods in the training school for delinquents, of which he is director, are particularly interesting. Here, again, we feel that in a large measure his success is personal rather than due to his psychoanalytic methods. He emphasizes quality and attitude of personnel, the necessity for making an institution conform to an actual social community, rules which are for the good of the inmates rather than for administrative convenience, etc. We should like to hear more of his methods of dividing delinquents into groups in the institution on which he has apparently done a great deal of thinking and experimenting. His chapter on a group of a dozen aggressive boys which no other groups would assimilate makes good reading. In the early weeks of their stay in the institution they were apparently not interfered with except to prevent serious physical injury, and when they were later moved to other quarters there was little in the way of furnishings or windows from which to move them. The theory was that if their aggressive tendencies were not opposed they would reach a climax and then something might be done. It seemed to work.

The author believes that more might be done in the way of creating and then making use of emotional experiences with delinquents. He thinks when more is known of the possibilities in this direction it may be possible to shorten institutional training considerably in some cases. There may be interesting possibilities here and we hope that we may hear more from Dr. Aichhorn on this, as well as other phases of work with delinquents, in future books.

H. B. Spaulding,
Canadian National Committee
for Mental Hygiene.

Guiding Your Child through the Formative Years. By *Winifred de Kok*. (New York: Emerson Books, Inc., 1935.)

This little book is addresed to the educated mother who has to look after her own children and is based on the author's experiences with her own two children.

It is written in simple language and the principles of mental hygiene are clearly expressed. The chapters on birth, sex and excretion are written from a psychoanalytical viewpoint, but in general the advice throughout the book is eminently practical. The affective life of the child is discussed objectively and practically and the work should serve the purpose for which it is intended. It should be useful also to workers in child guidance clinics.

S. G. CHALK,
Mental Health Clinic,
London, Ont.

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES FOR THE FISCAL YEAR 1935. (Washington: U. S. Printing Office, 1935.)

"The protection of the public health is an essential function of government." These significant words from the annual report of Surgeon General Hugh S. Cumming may be taken as the keynote of the dramatic story which emerges from the matter of fact statements in this compact volume of 158 pages covering the activities of the 137th year of the Public Health Service of the United States.

His report is of particular moment this year as it is the last which will bear Dr. Cumming's name as the head of the service. Surgeon General Cumming has been an officer of the Public Health Service since 1894, and was appointed to his present post by Woodrow Wilson in 1920. He retires from active service on February 1, 1936.

The tremendous growth and increase in importance and influence of the Public Health Service under Dr. Cumming's directorship are amply demonstrated by perusal of the successive annual reports. In a letter to the retiring Surgeon General President Roosevelt said:

"Your release from active duty marks the rounding out of a career in the public service which the American people can view with pride and admiration because of the honor you have brought to them as their faithful servant and benefactor. You, yourself, may view it with the most thorough satisfaction in a task well done.

"I am happy to recall that your labors in protecting humanity against disease and in advancing health standards everywhere have brought you deserved recognition and honor not only in your own country but throughout the world."

The present report referring to world health conditions during 1934 indicates an increase of cholera and plague in Asia as compared with 1933, an increase of typhus fever especially in Eastern Europe, and a marked decrease in fatal cases of smallpox throughout the world.

In the United States the tuberculosis mortality rate continued to decrease and the 1934 rate (56.2 per 100,000 population) was the lowest ever recorded. The continued lowering of the death rate in typhoid fever and diphtheria is one of the spectacular achievements of modern public health science. In 1920

the typhoid fever death rate in the United States was 35.9 per 100,000; the diphtheria rate was 43.4. The death rate for each of these diseases in 1934 was 3.3 per 100,000 population. Neither cholera nor yellow fever appeared in the United States during the year.

An interesting finding is a slight turning in the tide of the declining birth rate which has been steadily dropping for the past twenty years. In 1915 the birth rate was 25.1 per 1000 population; in 1933 it reached a low of 16.6 per 1000; in 1934 it rose to 17.1, a slightly encouraging sign although nothing to justify the government in raising the issue of colonial expansion.

The effectiveness of the quarantine services is reflected in the brief and eloquent statement: "None of the quarantinable diseases was imported into the United States during the year under report." The scope of this service is seen in the fact that during the year quarantine officers inspected 15,262 vessels, and 1,924,556 persons.

One of the problems which gives the Surgeon General concern is that of venereal disease. He estimates that there are approximately 518,000 new cases of syphilis and 1,555,000 of gonorrhœa arising annually within the United States. "On the basis of present morbidity reports syphilis and gonorrhœa represent 20 percent of all communicable diseases. Venereal diseases are as serious and as crippling as other communicable diseases, but funds are not allocated for their control in an amount which nearly approximates 20 percent of all allocations available for the communicable diseases in general."

In the report of the division of mental hygiene, under the Assistant Surgeon General Walter L. Treadway, the outstanding feature was the opening on May 25, 1935, of the first United States Narcotic Farm at Lexington, Kentucky. This institution which presently provides for men only has a thousand bed capacity. Provision for women addicts is contemplated for the future. On June 30, 1935, there were under care at the Lexington Narcotic Farm a total of 280 inmates, most of these being addict prisoners transferred from the federal prison system. There are also received cases probated from the courts and persons voluntarily seeking treatment. The second narcotic farm at Fort Worth, Texas, is in process of being developed.

These two institutions complement each other and are designed to provide for somewhat different types of case. The institution at Lexington will care for the more intractable cases, largely of the prisoner group, for whom the custodial features of care require emphasis. The narcotic farm at Fort Worth will be more open in character, built on the cottage plan, with the custodial features less in evidence.

The Public Health Service is charged with supplying medical and psychiatric services for the federal penal and correctional institutions; and it is worthy of note that during the year the Attorney General requested that the psychiatric service be extended to all federal courts.

C. B. F.

In Memoriam.

HERMAN MORRIS ADLER.

1876–1935.

With the passing of Herman Adler our profession has lost a member who did much to enlarge its scope of influence. With sound imagination and large vision he successfully guided psychiatric work into almost untrodden fields.

Adler came from a distinguished family. His father, Isaac, was a scholarly physician of wide practice in New York. His uncle, Felix Adler, the founder of the Ethical Society, was one of the great modern leaders in philosophy and education. After Herman graduated from Harvard in 1897 he entered the field of medicine, receiving his doctorate degree at Columbia in 1901 and studying abroad in Strassburg and Berlin. Then he worked in neuropathology and biochemistry at the Harvard Medical School, becoming an assistant and then an instructor. Associating himself with Southard who inspired so many young men to go into psychiatry he began in that field at Danvers State Hospital and in 1912 became chief of staff in the Boston Psychopathic Hospital and assistant professor of psychiatry in the Harvard Medical School.

For the National Committee for Mental Hygiene under a grant from the Rockefeller Foundation, Adler in 1916 made a survey of public facilities in Chicago and Cook County for the care of mental defectives and the mentally diseased. This was a step in the direction which led to his great service for psychiatry and for public welfare. When the present writer went to Boston in 1917, Adler was chosen as head of the Juvenile Psychopathic Institute which later became the Institute for Juvenile Research. The next year Adler, ranking as major in the Medical Corps, U. S. A., was studying disciplinary cases at the military prisons. In 1919 he returned to Chicago and began laying the foundations of a statewide clinical psychiatric service which was unique and remains a memorial to his capacity for organization.

It was in the field of social psychiatry that Adler found scope for his remarkable abilities; he was able to persuade the powers

that be of the values of this branch of psychiatry and single handed he won great backing for his ideas. Before long the Institute was on a budget of over $160,000 a year from the State of Illinois and in 1926 the Behavior Research Fund with Adler as director was established with $50,000 a year from private sources. Adler then surrounded himself with men of high scientific attainment, Lashley, Darrow, Shaw and others, and from this research coterie have come some of America's most notable productions in brain physiology, clinical psychology and criminology.

Adler in the meantime became professor of psychiatry at the University of Illinois and state criminologist, and remained as director of the Institute until he removed to California in 1930. In California he was welcomed as professor of psychiatry in the University of California and as adviser to the Department of Institutions.

This is a remarkable career for the slight, frail man whom we knew as making for many years a most valiant fight against ill health. Adler with his organizing genius and his far-sighted outlook upon the implications of psychiatry for social service was a dynamo of mental energy. Moreover, with ever ready logic he was a most persuasive force in the community. From the beginnings of psychiatric work in the Juvenile Court he extended it into school systems and correctional institutions. The present diagnostic clinics of the Illinois prisons which represent a tremendous forward advance in the treatment of prisoners, as it exists under Dr. Schroeder, was an outgrowth of Adler's planning. Other notable pieces of work can also be credited to Adler, such as his contribution to the criminal justice survey of the Cleveland Foundation and his consulting work for the Harvard Survey of Crime and Law. His was the moving spirit in founding the American Orthopsychiatric Association.

Adler's membership in a wide range of scientific societies and the list of his publications represent the shift of his developing interests from biochemistry and pathology to the field of clinical psychiatry which he so aided to expand.

In 1917 Adler married Frances Porter of Chicago; his wife and their daughter, Frances, survive him.

WILLIAM HEALY.

GEORGE HUGHES KIRBY.

1875-1935.

Dr. George Hughes Kirby, one of the outstanding psychiatrists of this country, and president of The American Psychiatric Association during 1933-34, died of coronary thrombosis on August 11, 1935, at Portsmouth, New Hampshire, where he had been spending his vacation.

Born in Goldsboro, North Carolina, February 9, 1875, Dr. Kirby was the son of George L. and Mary Green Kirby, the father a physician and during Dr. Kirby's young manhood, superintendent of the state hospital at Goldsboro, N. C. Those who had the privilege of knowing the members of Dr. Kirby's family recognized the heritage that had come to him as exemplified in their gentle courtesy, consideration of others and high ideals. Because of his father's interest in, and experience with mental disorders it was perhaps to be expected that Dr. Kirby would show a trend of interest in a similar direction and this expectation was borne out when after being graduated from the University of North Carolina in 1896 and from the Long Island College Hospital in 1899, Dr. Kirby entered the field of psychiatry by becoming associated with Dr. Adolf Meyer at the Worcester State Hospital. There he remained until Dr. Meyer became director of the New York State Psychiatric Institute on Ward's Island and Dr. Kirby came with him as associate in clinical psychiatry.

During the years 1902-1908 when Dr. Kirby was associated with Dr. Meyer in organizing scientific methods of care and treatment and investigation in the New York state hospital service and later during the years 1909-1917 when he was clinical director of the Manhattan State Hospital on Ward's Island, Dr. Kirby left the imprint of his scientific and humanitarian principles and ideals on countless physicians who came in contact with him during these periods and who received the benefit of his advice and assistance in their professional careers. Distributed not only through this country but abroad, are many men who have carried on during subsequent years the tenets that he adhered to. Succeeding Dr. August Hoch as director of the Psychiatric Institute in 1917 Dr. Kirby creased the influence of the Institute and of the state hospital service by courses of instruction, hospital conferences and visits to

the state hospitals that were carried on during his directorship; the personnel and activities of the Institute in clinical studies and in research were extended and Dr. Kirby's development of the malarial treatment of general paresis at the Institute and subsequently throughout the state hospital service was an outstanding contribution to psychiatry. It is impossible to estimate adequately the benefits that have been derived by thousands of patients from his initiation of this form of treatment.

The planning, development and organization of the Psychiatric Institute and Hospital as a part of the Presbyterian-Columbia Medical Center demanded not only much thought but physical effort, which Dr. Kirby gave unstintingly and untiringly, undoubtedly with detriment to his health. So much so, that before he could see the culmination of his plans in the opening of the Institute, his health had already suffered to such an extent that he was unable to take as active a part as he wished and his friends desired for him, although he insisted on carrying many burdens which the new hospital entailed. It is recognized not only in this country but abroad, that the present Psychiatric Institute and Hospital stands and will remain as a monument to Dr. Kirby's foresight and wisdom in its physical planning, its equipment and organization for research and teaching. Not only is it an outstanding credit to the state but its part in medical education and particularly in psychiatric education is an outstanding one, excelled by none other in this country and this living, active monument to its originator and developer should remain as a source of pride to his family.

Dr. Kirby was professor of psychiatry in the New York University and Bellevue Medical College from 1914-1917, professor of psychiatry at Cornell University Medical College from 1917-1927 and professor of psychiatry in the College of Physicians and Surgeons of Columbia University from 1927-1933.

He had served as president of the New York Neurological Society, the New York Psychiatric Society, the New York Society for Clinical Psychiatry and The American Psychiatric Association. In addition, he was a fellow of the New York Academy of Medicine and a member of the American Neurological Association and the American Psychopathological Association.

In July, 1918, Dr. Kirby had been commissioned major in the Medical Corps of the United States Army and was attached to

the staff of the surgeon at the Port of Embarkation in New York City. He was later appointed chief of the neuropsychiatric service of the United States Army Hospital No. 1 in New York City and he took a major part in the organization of the special units for the care of returned soldiers suffering from nervous and mental disorders. He received his discharge from active service in March, 1919. He was later consultant in neuropsychiatry to the United States Public Health Service with the rank of senior surgeon and he was appointed by the Secretary of the Treasury, a member of the Board of Consultants to develop hospital facilities throughout the country for ex-soldiers. He was a member of the Medical Council of the United States Veterans Bureau.

Dr. Kirby was a member of the Southern Society and of the fraternities of Sigma Chi, Alpha Kappa Kappa and Phi Beta Kappa.

Dr. Kirby was also closely associated with the National Committee for Mental Hygiene, serving on the Board of Directors and the Executive Committee and being very active on the War Work Committee.

He had been associate editor of THE AMERICAN JOURNAL OF PSYCHIATRY, of the State Hospital Quarterly and the Psychiatric Quarterly for many years.

After his retirement from the directorship of the New York State Psychiatric Institute and Hospital in 1931, Dr. Kirby had engaged in private practice and was appointed professor of clinical psychiatry at the Cornell University Medical College, a position he held at the time of his death.

Dr. Kirby is survived by his widow Jeanette K. Kirby and daughter, Jeanette V. Kirby.

Throughout his professional career, Dr. Kirby evidenced outstanding qualities of patience, consideration, courtesy, soundness of judgment that attracted to him all the colleagues and associates who had the privilege of knowing him, and his patients with whom he was always sympathetic and helpful in his approach. Never was he carried away by unsound enthusiasm for the moment; his judgments and conclusions were based upon fact, after careful deliberation. It was these qualities that made him one of the outstanding psychiatrists of the country and his loss to psychiatry is great.

CLARENCE O. CHENEY.

AN EXPERIMENTAL APPROACH TO PSYCHIATRY.*

By W. HORSLEY GANTT, M. D.

Phipps Psychiatric Clinic, Johns Hopkins Hospital, Baltimore.

I have the honor to present for your consideration certain facts which we have obtained from an elementary type of research—experiments begun chiefly on the basis of the Pavlovian concepts in Leningrad during my four and one-half years' collaboration with Professor Pavlov (who now at the age of 86, I rejoice to say, is still active) and continued at the Phipps Psychiatric Clinic under the general direction of Adolf Meyer.

After a brief introduction to the methodology of the conditioned reflex teaching, I shall mention artificial disturbances of behavior obtained in our laboratory, Pavlov's basis for a division into types, the analogies and contrast with the Freudian and Meyerian explanations, and finally a word about the relativity of psychobiological facts.

I. Methodology.

The Pavlovian school thinks of the cortex as a group of analyzers, composed of the various receptors—which in turn consist of end-organs capable of responding to the different forms of energy that impinge upon them—plus the conductor with its central connections. The analyzers have the function of selecting, from the various series of stimuli falling upon them, one specific kind. They are limited in their pick-up to only a small proportion of the types of energy known in the universe.

The particular stimulus taken up by the end-organ is now synthesized in the cortex, *i. e.*, combined with another activity already existing within the organism and determined by its structure. Thus we have a conditional reflex, a reaction elaborated by the coincidence of the environment (experience) with that individual organism (biological structure).

* Annual address read before the New England Society of Psychiatry, Boston, April 26, 1935.

Now the animal reacts to a particular stimulus by a definite form of overt expression, either secretion of gland or movement of muscle. The strict behavioristic school thought that psychobiology was contained within the limits of these external outpourings and changes in spatial relations; whereas others have subscribed to a central rather than psychobiological existence, and we have recently shown in our laboratory that when neither of these overt expressions is possible the reaction within the central nervous system persists. This state in the central nervous system is what we call excitation.

The above reactions of adaptation to experience are modifiable, hence when the conditions which have evoked the reactions are changed, there may be no overt response on the part of the animal. This state, derived from excitation, has been termed inhibition, but as the word has so many connotations it should be replaced by a less malodorous one, for example, negative excitation, as proposed by H. G. Wolff.[1]

The Pavlovian concept of the cortex is that of an organ, analyzing and synthesizing, making connections between changes in the environment on the basis of individual experience (conditional reflex) with biological structures on the basis of species or hereditary experience (unconditional reflexes). In this concept the nature of the executor reaction, it seems, is of little importance, for the connections are made in the central nervous system, and the effector organ may produce very different results, not necessarily because the central connections are dissimilar, but because of the executors. Owing to the varying structures of the external defense organs, what a vast difference there is between the reactions to an enemy of an electric eel, a serpent, and a tiger. Each performs like a puppet pulled by strings, depending upon what the string is attached to; one shocks, another injects poison, the other rips asunder, according to whether the executor is an electric battery, a sac of venom, or teeth and claws.

An organ or nervous center functions thus not only by virtue of the stimulations falling upon it, but also because of an inherent property to perform in a certain way, plus modifications by ex-

[1] Wolff, H. G., and Gantt, W. H.: Effect on the highest integrative functions. Arch. Neur. and Psychiatry, 33: 1030-1057, 1935.

perience. An isolated strip of heart muscle beats indefinitely, and various nerve centers begin to discharge automatically at a certain stage of their development. The rôle that each plays—center and periphery—can be seen more clearly when the normal connection is replaced by another as when nerves are sutured to the wrong end organ. There is thus a determinism according to structure of each tissue, organ and center. The biologists recognize this when they speak of genes; the behaviorists, emphasizing the modifications by experience in their reflexology; and we as psychiatrists have our constitutional types, psychopathic dispositions, morons and geniuses.

There is now a general familiarity with the conditioned reflex method, but I shall review briefly the classical Pavlov experiment. The environment is fixed as far as possible by keeping the individual in a sound proof camera of constant temperature, and a uniform internal milieu is striven for by regulating the conditions of living, the time of working, feeding, etc. We artificially change only one element of the external environment, by introducing a sound, light, or a tactile stimulus, each evoked mechanically without the interpolation of the experimenter. Simultaneously we create another excitation in the organism by stimulating an inborn activity, such as secretion of saliva to food or acid, muscular movement to defense from pain, or investigation (orientation) to a new object. Our change of environment becomes a signal or conditional stimulus for the reaction which under this set of circumstances is called a conditional reflex, elaborated, as it is, and dependent upon, a temporal coincidence.

The segmental nervous system is set, so to speak, for the zoological species, and varies very little from individual to individual within the genus. It is, therefore, almost unconditional, only slightly adaptable, not subject to the experience of the individual. though it may be to the experience of the species. We are now investigating in our laboratory what is the delimitation between the modifiable (conditional) and unconditional reflexes. The conditioned reflexes are modifiable and change with environment and experience. The mechanism of this change is, as I shall describe in the laboratory experiment, brought about by the process of internal inhibition.

The organism has elaborated, let us say, a connection between a certain form of external energy (light, sound, touch, smell) so that

this signal sets off, like the trigger of a gun, a predetermined reaction dependent upon the structure and experience of that individual. But when this signal is not followed by the stimulus which once it signalized, the signal may lose its potency as a substitute. In the effector organ nothing may happen, but this does not mean that nothing happens in the central nervous system. On the other hand, there is produced an active state in the cortex which we term internal or cortical inhibition. On this basis we have the higher cortical differentiations which mark the lower animals from the higher as well as the idiot from the genius.

In the laboratory we bring this about by failing to give food (in the case when this has been the unconditioned stimulus) after its signal. Gradually the secretory and the motor conditioned reflexes drop out, and the animal responds by a state of muscular and secretory inactivity, which may spread over into sleep. We have now in our laboratory an animal with a differentiation between a metronome of 60 (positive) and 140 (negative) beats; this dog has for the past five years fallen asleep regularly almost exactly 8 to 10 seconds after the beginning of the negative metronome, in spite of the fact that there may be an interval of many months between trials.

It is important to think of this process, whether we call it inhibition or negative excitation, as an active cortical one; for the phenomena based upon it disappear when the cortex is extirpated. Also we can restore the positive activity by the method of disinhibition, or providing a stimulus that will inhibit the inhibition.

II. Experimental "Neuroses."

A rearrangement in the time relations of the signal and the natural stimulus for the inborn or unconditioned reflex, or secondly a juxtaposition in space of the signals for excitation and for inhibition, may result in a disturbed nervous system of the animal.

In certain dogs, when a difficult differentiation is attempted, when the conditioned stimuli are brought closer and closer together, the animal may break down completely. The following experiments, performed by R. B. Loucks in our laboratory, and similar to many previous ones in Pavlov's laboratory, illustrate this. Three dogs were used to differentiate between two tones; in the beginning

only one tone was given, and it was always accompanied by food. Then a new tone was introduced and food not given. At first the animal reacts to the new tone by the same food reflex as before, *i. e.*, by secretion and muscular movement. After a certain number of repetitions the movements drop out, and later the secretion to the second tone, and we have not only a process of excitation to T1 but the process of inhibition to T2. Then T2 is brought little by little closer in pitch to T1. All three animals differentiate, but as the approximation is continued a point is reached when none of the animals can differentiate. Two of them turn to the food box on both of the tones. As the tones approximate the same pitch the animals evince restlessness, panting, and occasional barking. One of them develops a new reaction—he no longer takes food at all, even on the positive stimulus, but he begins to manifest the defense reflex. Furthermore he shows a stereotypy, so that he reacts to all the conditioned stimuli in nearly the same way, whether they be positive or negative, and even to those that were not connected with the original differentiation, that is, to any stimulus that has been used, light, tactile, etc., or almost any that may be introduced now into the experimental environment.

He whines and barks throughout the whole experiment, bites at the apparatus, shifts about in the stand from one foot to the other, pants vigorously, looks toward the door, tries to get away. The reaction to the food or to its signals is a specific avoiding one exactly like that we have seen in dogs to a painful stimulus such as the electric shock. When the signal for food begins this animal turns away from the food box, looks toward the door, struggles in his harness, tries to escape. He refuses absolutely to take any food in the experimental room. Merely the dropping of the food before him evokes the same defense reflex.

The animal will not run into the camera and jump on the table as he did before, although the other two dogs continue to do this, but not so avidly as before the differentiation. The disturbed one has to be coaxed and often pulled in against his resistance.

The whole set-up and milieu of the experimental camera now has an effect. Although when first brought into the camera he eats if fed from the hand, as soon as the routine salivary disk is applied, he refuses food, turns away from it as from a painful stimulus. If he is taken out of the camera into the surrounding room,

he can be coaxed to eat, but if any of the experimental stimuli are started, though he is unhampered and free to run, he immediately drops the food from his mouth and begins whining. When the conditional stimulus stops he begins playing again.

It was thought that rest might cure this animal, so he was given first six months' and then two years' rest without experimentation, but with only slight amelioration of his condition. As soon as he is put into the experimental camera, the old behavior recurs—refusal of food, whining, general defense reaction. And all of this when two years had elapsed since the experiment with the conflict, the differentiation that was impossible.

Bromides have been found by Pavlov to have beneficial influence on certain types of dogs in such nervous disturbances, and recently Liddell has used cortin with some effect in sheep (though it had no effect on our dog).

It is to be noted that outside of the experimental camera his behavior was normal as far as could be seen from casual observation. He played with his master, reacted to other dogs as formerly and ate with the usual canine appetite.

Pavlov has found such animals in his laboratory that break down only under the conditions of the experiment and are normal in other respects, but as soon as the difficult situation is brought up they go to pieces. He considers them analogous to paranoics.

In normal dogs excitation and inhibition can be readily interchanged without disturbance to the animal, by extinction of the former and reinforcement of the latter. But in animals with a weak nervous system, or those made weak by castration,[2] such interchange is not possible; on the other hand, the more one tries to convert or modify certain previous reactions the more difficult it becomes. Let us say that an animal has a positive conditioned reflex to M120 and a negative one to M60 and that these stimuli are interchanged so that the one which was formerly accompanied by feeding is now inhibitory and vice versa. In a normal dog when one conditioned reflex is extinguished the others become automatically extinguished too, but in an animal with a weak nervous system in whom there has been an attempted conversion of two metronomes,

[2] The idea of castration was suggested to Pavlov by the statement of Bleuler that paranoia is often characterized by sex insufficiency.

the extinction of other conditioned reflexes does not extinguish the pathological reaction to the metronome except after a long period—twelve and a half minutes compared with two minutes for other stimuli. The metronome remains a sore spot for the dog and all measures to remedy the condition tend only to aggravate it. The animal is normal in all respects except when his sore spot is touched; he is like a paranoic, stable in his perverse system of thinking.

In a paranoid dog of this type one and a half grams of bromide per rectum one-half hour before the experiment renders him tractable, making the conversion from the positive into the negative metronome easy, but the next day when the bromide is omitted the animal relapses into his former pathological condition. Pavlov recommends small doses of bromide for dogs of the weak type, and large doses for those of the strong type. The basis for these two types will be given later.

We have also obtained minor and transitory grades of disturbances in our normal animals which appear before they have mastered a differentiation between signals and vanish later. A "compulsion" or obsessive-like act was seen in two of our dogs when an excitatory stimulus was being converted into an inhibitory one, before adaptation was accomplished: the animal began to open the food box suddenly and impulsively between stimuli and without any signal, which it had never done before except with the proper signal.

Pavlov considers that there are three levels for the complex reflexes (including what are usually considered instincts); first, the subcortical ones such as emotion, fear, anger, defense, orientation, etc., those which are present after the extirpation of the cerebral cortex. Second are the conditioned reflexes, built on these lower ones, the signals in life for what has followed. Such reactions play the dominant rôle among the cortical phenomena of animals. But in the human we have a still higher set of symbols which adds greatly to the possibilities of complexity; in them there is a whole system of symbols for the more direct signals or conditioned reflexes—there are words which go to constitute the speech mechanisms. Conditioned reflexes in dogs can be built into only short chains of three to five signals which diminish rapidly in stability and potency the further removed they are from the unconditioned stimulus. But the word symbols in the human are capable of existing in endless chains forming almost an independent system in

themselves, so remote from the reactions which they were founded upon and intended to signalize that this relation is often hardly evident, can be traced with difficulty, and perhaps may cease to function, being subordinate to the new word system.

The past five years Pavlov has spent one or two days each week in the psychiatric clinic, and from this experience he has postulated that neurasthenia, psychasthenia and hysteria represent pathological disorders in three different strata of reflexes.

It is interesting to note that the philosopher-mathematician Korzybski has recently founded a school of thought called the non-Aristotelian system, somewhat analogous to Pavlov's word system. He refers to the reality of objects as the "extensional" system, and the word symbols that are built up on this as the "intensional," and he refers to the mistaking of terms for what they were supposed to signify as "identity," and his own non-Aristotelian system as "non-identity." Korzybski expounds the view that much of the confusion in human civilization results from accepting word signals for what they signalize. Pavlov explains only pathological states such as hysteria by false symbolization, whereas Korzybski would have us believe that practically every human ill arises from this cortical dysfunction of speech.

Natural Conditions Affecting Behavior.

I have pointed out how we may produce artificially the processes of excitation and inhibition and nervous disturbances by a juxtaposition of them in time or space. Now I shall ask your attention to some "experiments of nature" which have altered both the ordinary behavior and the conditioned reflexes of the animals. Just as in the previous experiments, different individuals are affected not at all or in varying degrees depending upon the individual type. The first incidence of this was reported by Pavlov in 1925.[3]

During the flood in Petrograd in 1924, the animals were subjected to the severe strain of the terrific storms; they had to be rescued by making them swim from the kennels to the laboratory, where they were huddled together indiscriminately. Some of the animals showed no disturbance in their conditioned reflexes but those of the "inhibitory type" suffered a functional disturbance of the cortical activities for a considerable period of time.

[3] Pavlov, I. P.: Lectures on conditioned reflexes. International Publishers New York, 1928.

Our case, occurring in 1931, was similar. The dogs escaped from their paddocks on the top floor, and were seen by the night watchman, Sunday, April 19, 1931, roaming over the building. He claimed that the dogs attacked him, and during the pandemonium they were badly wounded by him and intercanine scuffles. For a week afterwards three of the animals who were tested by the conditioned reflex method showed disturbances according to the type of animal. The most severe, occurring in a timid young collie, resembled a depression; the animal slunk in a corner with tail tucked, head hung, and would not respond to his master; the conditioned reflexes were almost abolished for several days. The second dog of the excitatory type was much subdued after this accident, and his differentiation between two metronomes was destroyed for several days, gradually returning to normal. The third was a stable bull dog, and, although badly bruised, he showed practically no change in his conditioned reflexes. In experiments with the action of alcohol on these three animals we found a somewhat similar gradation according to type.[4]

The sex act has little effect in our dogs on the conditioned food reflexes. Œstruation in the female and coitus in both male and female are not reflected in the intensity nor ordinary differentiations of the conditioned reflexes, including both positive and negative, that is, in the intellectual life of our canines, even though the animals in our laboratory were tried immediately following coition. It is perhaps needless to observe that copulation in dogs cannot be compared to coition and everything that this may involve in the human.

Pregnancy up to the hour of labor does not alter the intensity nor differentiations of the conditioned reflexes. But after labor and for the first few days postpartum there is a marked change in the behavior of the animal—in the experimental camera, extreme restlessness, whining, barking, panting, and failure of differentiation, the symptoms that we get in what Pavlov calls "neurosis" (Adolf Meyer prefers the term "tension states"), or a disturbance in the balance between excitation and inhibition. This continues

[4] Gantt, W. Horsley: Effect of alcohol on cortical and subcortical activity measured by the conditioned reflex method. Bulletin Johns Hopkins Hospital, Vol. LVI, No. 2, pp. 61-83, Feb. 1935.

2-4 days, is much worse on the first and second days. Placing the puppies in the experimental camera with the mother does not relieve the symptoms. The unconditioned reflexes are little altered.

Surgical proceedings, *e. g.*, laparotomy, extirpation of an eye, seem to have no effect on the cortical reflexes, provided the condition of the animal is good. What a contrast we have here to the psychical traumata mentioned above. Abscesses, parotitis and such infections cause an amnesia, the artificial conditioned reflexes formed in the laboratory vanish temporarily to return as soon as the malady is over. Whether this is due to a special type of pain or to the systemic involvement we are unable to state.

Here a word should be said concerning the stability of our conditioned reflexes formed in the laboratory and their place in the dog's psychobiology. These are not only weaker than those inborn reactions, but also than the acquired reflexes elaborated earlier in the life of the animal. They are first to disappear under adverse conditions such as disease or the action of drugs. We have tried the effect of amytal, alcohol, etc., and find that the artificial conditional reflexes, such as the reaction to smell and sight of food are much more stable than the remoter signals used in the laboratory.

Fatigue, as shown by continuation of the experiment from the normal one hour up to eighteen or twenty, causes the conditioned reflexes to diminish somewhat in intensity, but the effect is not great; they do not suffer markedly even after twenty hours' work in the experimental camera.

III. Types of Nervous System.

Pavlov has for some years noted differences in his dogs, and at first he divided them into the four classical temperaments of Hippocrates. He considers that they fall roughly into excitatory and inhibitory as extremes, and a central group in which the forces of excitation and inhibition are equilibrated. The sanguine and phlegmatic represent the central normal group with the choleric and melancholic as extremes.

A later differentiation was into cortical and subcortical types, on the basis of whether the reactions were predominately those of the subcortex (primitive, emotional, inborn) or cortical (intellectual, capable of fine differentiations). Many of the first would

constitute our psychopathic personalities with their strong aggressive, antisocial traits, primitive and uncontrolled appetites and passions; whereas the cortical type represents the highly educated and cultured with their diversified interests, inhibition of primitive excitations to attain a goal, perhaps very distant. To say that all of the latter are acquired and the former inherited is a general distinction though perhaps not altogether correct.

The division between weak and strong types is made on the basis of the regularity and stability of the conditioned reflexes, and the ease with which they are extinguished—that is the adaptability of the animal to its environment.

IV. The Pavlovian, Freudian, and Meyerian Systems.

Pavlov and Freud both make use of the principle of conflict; with Pavlov the conflict is between cortical processes of excitation and inhibition, which either because they come too close together or because of the weakness of the nervous system of that individual, may result in a disturbance of the balance in the suprasegmental reactions. Pavlov's theory is simple, mechanical, and proceeding as it does from work on the dog, requires no postulates such as the unconscious, infantilism and sex life. Moreover it has been evolved chiefly on the basis of investigations of the food reflex, to a less extent the reflex of defense. We have seen how these two systems alone can in the dog produce nervous disturbances without any reference to the sexual instinct. This seems to be more concentrated, less diffuse, in animals than it is in humans. However, it does seem important for the mechanism of the production of nervous tensions that they can be caused by a conflict, a difficult differentiation, without reference to the nature of the underlying unconditioned reflex. Whether all of these are equi-potential in the conflicts that are based on them is a question that remains to be answered.

In applying the methods of Pavlov experimentally to the adult human we encounter difficulties. In the first place, with the human the food reflex is relatively subordinated to other more prominent social instincts. Secondly, there is a much stronger investigatory reflex in man so that we can never isolate the observer from the subject during a direct experiment. Thirdly, inhibition is more

marked. Fourthly, speech complicates the picture, which, as we have mentioned, occupies a dominant place as an almost independent system in the human. An angry look or gesture is a conditioned signal for inner processes of which every layman may be well aware, but once let the corresponding word signals be uttered or written, although plainly equivalent, and they become a source of such irritating preoccupation and elaborations that the floods of years may not wash them out. On the other hand, how much of human action is determined by a phrase or a tenet!

The psychobiology (or ergasiology) of Adolf Meyer and Pavlov's conditioned reflex methods have a common denominator in that they both have an objective point of view. However, the facts of Pavlov's objectivity are experimental and exclusive, whilst Meyer's are those of an indirect experiment, obtained by observing an experiment of nature, inclusive. Pavlov limits the conditions and uses physiological methods; Meyer does not depend on any one method, but is content to observe empirically, and to emphasize the importance of common sense in every-day experience. Pavlov, in considering psychical phenomena as governed by the same natural laws that hold for the physiological reflexes, is monistic rather than dualistic, while Meyer, taking into account all the available data and giving each a hearing and place, is pluralistic.

By the conditions of the strict methodology of science, Pavlov is obligated to confine the experiment to a few variables, in order to simplify. Scientific laboratories feel on sure ground when they have only several variables from which to make their computations. The dog must be put into a psychical strait jacket, the environment standardized, and the measurements are either positive or negative and quantitative. In the experiment of nature everything is considered and the conditions are not limited. Both Freud and Meyer, being psychiatrists, may concern themselves with an inner biography of the patient. With Meyer every fact that might have a bearing stands on its own merit, none are slighted in order to make room for others more alluring. Moreover none may be magnified; the tail must not run away with the dog, the part must serve the whole and not vice versa. There is a kind of Communism of laws and biological facts where balanced judgment sits as dictator; enticing theoretical interests may not suppress and exploit the more natural and therefore often less evident factors. Doubtless many

patients have reason to be grateful for this tolerance that does not stretch them out nor chop them off to fit the Procrustean bed of theory.

But the experimental method must have a theory and an hypothesis on which to swing its facts, and the whole progress of the elemental sciences consists in building up theories only to be torn down and reconstructed in order to house newer data.

V. Dilemma of Science: Conditionality in Psychobiology.

Now we come to the dilemma of the experimental method. In any experiment where we limit the conditions, we deal with a part only of the organism, otherwise we can not find out the desired mechanism when uncontrolled factors are at play. We attempt to exclude all but one or two variables in order to see their reciprocal relations. Even with inorganic objects our experimentation, as pointed out by Jeans, changes the nature of the materials, and more so in psychobiology does the introduction of stimuli alter the animal. The smoke rings blown from our scientific pipe in the seclusion of laboratory meditation, suddenly, when we open the window of life, get caught up into the vortices and cross-currents created by the multiple forces of psychobiology, and may not preserve their same ideal forms as they did in the quiet of the laboratory. Our experiments, then, can give us hints and suggestions rather than implacable truths.

There is still another factor to be considered and that is the possibility of handling multiple forces by the mathematical formulæ toward which science strives. Ordinary mathematics expresses relations between two or three quantities when the rest of the cosmos remains uniform, but if the number of forces increases greatly the mathematics becomes too involved to encompass them satisfactorily. The success of the astrophysicist undoubtedly proceeds from his dealing with such distant events that nearly all their qualities fade out except those one or two functions that get across stellar space and down a telescope. Fortunately in our earth mechanics, and often also in psychobiology, there may be only two or three dominant forces, and our science is then pratically adequate.

Einstein has shown us that the absolute must give way to a concept of dependence on point of view of observer as well as the relations of the observed objects. The laws of Euclid and Newton

were true for that generation, with those instruments; they brought into harmony what facts were discovered then. Finer instruments mean greater precision, and the old theories no longer hold. And what is true today will not be a generation hence.

We recognize that what were considered as immutable laws in physics and chemistry are conditional and relative. Water between 0° and 100° has well-known properties, but change either one factor, pressure or temperature, and we have a substance so different that we would not recognize it as the same unless we could reconvert it. All the laws of physics and chemistry are dependent not only on earth chemistry, but on earth conditions within a narrow limit. Increase only the one factor of temperature and we get a world of vapor where most of the present scientific laws of properties of substances do not obtain, *i. e.*, we have a new universe. Even the laws of elasticity of a rigid substance like steel are valid only under certain narrowly limited conditions.

Relativity, or conditionality, in biology and psychobiology is of even more importance. Weber's law, for example, is cogent only for a normal organ and furthermore with stimuli of certain intensities, *i. e.*, for the conditions that are similar to those under which it was elaborated. There is one law for the earthworm, another for the fish, and still two more for the idiot and the genius. For the earthworm to be cut in two means life; the fish sees the objects of our world as suspended in a 90-degree cone; but the philosophy of the earthworm or the piscatorial point of view does not satisfy us. For none of them is reality so imperturbable that it could not be completely revolutionized, all the old concepts overthrown, by the introduction of a single new sense, or in our case perhaps of even a new instrument. Reality, ultimate truth for each is what *he* sees with *his* eyes, hears with *his* ears, can synthesize with *his* cortex. Fortunately most of us who call ourselves scientists can agree on a working definition of temporary truth.

We are now ready to abandon the quest of ultimate truth in physical sciences, and should be the more so in psychobiology; we are content to let reality flow on unfathomed except for the ripples that we can see on the surface; about the depths we can only guess. And even with what we see we must not be too pretentious, but by the psychobiological formula,

$$\text{Self-esteem} = \frac{\text{achievements}}{\text{pretensions}},$$

we can raise our self-esteem by lowering our pretensions as regards final truth. Otherwise we see nothing but confusion from the multiplicity of theories and dogmas when we witness science rejecting what yesterday it swore by. Absolute truth being, then, an unobtainable goal, we shall be satisfied when we have a formula which accounts for all the facts in hand. This theory must be our standard truth until instruments and methods of finer precision bring us new facts and relations. Our shifting truth, like the conditional reflex, is good under the conditions of the experiment. If we have observed carefully, thought clearly, taken into account all the data, we can do no more until the time when a new method or point of view will show us an approach which did not exist with the old set-up. Our conditional truth becomes thus determined by instruments, methods and observer, as well as by the observed organism. The important question is not,—Is this or that law true, but—Under what conditions was this law formulated and *in which circumstances* is it true, *i. e.*, its conditionality.

What was at first baffling now heartens us—when we know that an absolute formula is, like infinity, a figment of the imagination; but that relative truth, satisfactory for our work even in the difficult field of psychobiology, is not the monopoly of the few but within the reach of every careful observer and clear thinker. Although we may have lost the vision of an everlasting truth, this does not necessarily compel us to a nihilistic view. By directing our efforts toward what is at hand, collecting and arranging available facts, with the sense that what we can do is under the circumstances the best, we arrive at a conditional formulation, and with this as a starting point we may proceed until a broader horizon enables us to discard our formulation for a better one. This movement from one conditional truth to another, always in conformity with the milieu of methods, instruments and current knowledge, is certainly more exciting and dynamic than a fruitless search for the philosopher's stone of eternal truth, which, if found, would leave us as mental automatons in a world of stagnation.

PSYCHIATRY IN AND AROUND ST. LOUIS.

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In Missouri psychiatric institutions are under the two administrations, that of the state and that of the city of St. Louis. Under state control are four hospitals for the insane and the state school, and under the city's supervision are the large City Sanitarium and the Training School. At the present time as a result of the approval of bond issues the administrators of both state and city hospitals are engaged in or actively planning a rehabilitation and building program to cost an aggregate of perhaps twelve million dollars. Since expenditures on the institutions had long been kept to a minimum, plants in many instances had become antiquated to a dangerous degree and space under increased depression demands had become greatly overcrowded.

The State Institutions.

The state institutions are the Fulton State Hospital, the St. Joseph State Hospital, the Nevada State Hospital, the Farmington State Hospital and the State School for the Feebleminded and Epileptic at Marshall, established respectively in 1847, 1872, 1885, 1903 and 1899 and having respective populations of about 1700, 2500, 1700, 1200, and 1200, which figures represent overcrowding of almost 40 per cent. The nearest of these hospitals to St. Louis are Farmington about 75 miles and Fulton about 100 miles distant.

The administrative setup of the state's hospitals has varied from time to time. At the present moment there is a bi-partisan Eleemosynary Board consisting of five unsalaried citizens and a full-time secretary, the latter position now being held by Mr. W. Ed Jameson with offices in the capital, Jefferson City. Appointments to the board are made by the governor and the board in turn appoints the superintendents and otherwise supervises the hospitals. For a few years there was a full-time psychiatrist to the board and later for a period the late Dr. M. A. Bliss, a psychiatrist of St. Louis who was much interested in institutions was a member of the board.

The penal institutions are supervised by a penal commission of three consisting of the director of the department, the head of the parole board and the supervisor of farms, all appointees of the governor.

In 1929, moved doubtless by the glaring need and probably under the urging of Dr. Bliss, Governor Caulfield caused a bill to be passed by the legislature creating a commission to study all of the building needs of state institutions including state hospitals, penal institutions, the university and teaching colleges. This commission, consisting of prominent laymen, submitted its report in November, 1929. Before further action could be taken there was a change in the state administration and Hon. Guy B. Park became governor; but ex-Governor Caulfield, continuing his interest visited the capital and urged Governor Park to sponsor a bond issue of twenty million dollars for the eleemosynary and penal institutions. Governor Park further encouraged by the prospect of a supplementary grant from the federal treasury then recommended a fifteen million dollar bond issue to the legislature and the final result was that in May, 1934, an issue of ten million dollars was approved by the electorate. To this amount the federal government added almost four million dollars. Of the total amount 58 per cent has been allotted to the eleemosynary institutions (which include two smaller institutions besides the psychiatric) and 42 per cent to the penal institutions.

The act authorized a building commission consisting of the governor and heads of state departments but the actual direction of operations has been placed in the hands of an unsalaried bi-partisan Advisory Board of six prominent citizens, voluntarily created by the governor. This board authorized a detailed survey of needs and for this purpose called in Dr. Burdette G. Lewis, a man of large experience in civic and corporate organization and administration and the one largely responsible for the present setup of the Department of Public Welfare in New Jersey. Dr. Lewis' report was completed in January, 1935, and included detailed recommendations for the rehabilitation and new building needed by each institution and as well an excellent study (conducted by a psychologist, Dr. Theodore F. Lenz of St. Louis and others) of the work potentialities of the prison population. It is to be noted that Dr. Lewis' survey was limited in advance largely to plant require-

ments and therefore his report entered very little into broader policy either psychiatric or penal. In addition the late Dr. Hart of the Russell Sage Foundation and one or two others have given advice to the various boards to a limited extent.

Dr. Lewis' recommendations, it seems, are not being followed in all details by the Advisory Board. In one notable instance a second penitentiary is not being erected distant from the present one, the latter, an antiquated group of buildings some hundred years old to be mostly abandoned, as Dr. Lewis recommended; but instead the present plant is being extensively remodeled and additional buildings erected nearby, at a cost of nearly six million dollars. Again the Advisory Board has conceived the plan of having reception buildings which are in effect psychopathic hospitals in connection with each of the state hospitals, under the conviction, as is stated, that the discharge rate under the psychopathic hospital method of treatment is far higher than under the state hospital method and that a great saving is thus secured. The penitentiary also is to have a diagnostic admission center. These, it appears, are the only considerable changes in methods of treatment either eleemosynary or penal instituted in the course of the program.

It is understood that when the building program is completed there will be very little space over and above present needs; future requirements, if they prove to be larger than the present ones, being left to take care of themselves as best they may.

The Institutions of St. Louis.

The City Sanitarium, founded in 1867 and located near the southwest city limits has a capacity of about 2300 patients and a present census of 3516. The Training School for the Feebleminded, completed in 1924 and located a few miles north of the city contains about 500 patients. The City Sanitarium is fed largely from the observation ward of the City Hospital which is attended by unpaid visiting psychiatrists and which, incidentally, has under heavier depression demands become a local scandal, if temporarily an unavoidable one.

These two institutions, as well as the City Hospital, the Koch tuberculosis hospital and the Isolation Hospital, are under the direction of the hospital commissioner, a physician by tradition and an appointee of the mayor.

In 1932 the authorities of the city's hospitals made moves towards putting through a fifteen million dollar bond issue but were unsuccessful. The matter was again taken up by the new authorities when the state made its movement and at the same election with the state a bond issue of seven million dollars (a part of a sixteen million dollar issue) was voted for all of the city's hospitals. To this amount the federal government added three million.

The exact amount to which the psychiatric institutions will benefit is not yet determined. The city is erecting its buildings one or a group at a time and is completing its specifications in similar sequence. The first building to be constructed is the psychopathic hospital, but it is the present plan to erect buildings for tuberculous patients before the additions to the City Sanitarium are made. It is tentatively estimated that about three million dollars will be allocated to this institution, an amount, incidentally, that, allowing an estimated two million for development of the present plant, leaves only one million for increased bed capacity. Evidently overcrowding will not be completely taken care of under the present bond issue and it will be years before partial relief is obtained. Since an arrangement exists with the state, some patients may be transferred to the state's hospitals as these are completed.

The specifications of the psychopathic hospital are now practically complete. It will be erected adjacent to the City Hospital in the central section of the city and will have a capacity of 250 beds. Its cost is placed at $1,200,000 and it will be modern and adequate in every respect, being modelled closely after St. Elizabeth's in Washington. Space for child and adult outpatient departments, occupational and physical therapy, etc., has been provided. It is planned to have a considerable salaried personnel of psychiatrists. The institution should be open to receive patients in about two years.

Comment on State and City Psychiatric Policies.

Readers undoubtedly will see much to criticize in these various procedures and policies of the city and state. Obviously not enough expert psychiatric and penological guidance was sought in connection with the preliminary surveys and the completion of plans, and it is regrettable that along with construction studies such mat-

ters of broad policy as family care, home placement, out-patient care, research, tenure of personnel and penal probation were not also investigated. With both officialdom and the electorate at last in a complaisant mood, a thorough and advanced program of psychiatric care and treatment might with a sufficient background of information and advice have been instituted.

One instance may be mentioned. Dr. Hamilton sounded the warning at the last meeting that expenditures for the states' wards were almost sure to be drastically reduced in the near future and that therefore new and cheaper methods should be found immediately. Extended extramural care seems to be one promising solution. One consequently cannot but question whether St. Louis under the circumstances is justified in building an elaborate psychopathic hospital which inevitably will have a high subsequent overhead. With a modest but efficient psychopathic hospital, a greatly enlarged and perfected out-patient department and facilities for returning patients to their homes early might at the same time solve problems of finance and service.

The reform most needed by both city and state, apparently, is a civil service that really works. Those in control are now frequently too inexperienced, have too little power and are in office too short a time to be able to visualize and put into effect indicated or promising measures. Penal probation, for example, requires an elaborate and efficient machinery and a long time for its successful installation. For another thing under the present system the entrance of political expediency has been apparent from time to time and a political raid may occur at any moment. The state has no sort of civil service and the city one that exists only on paper. Perhaps the agitation for the merit system now abroad will aid towards attaining this goal..

The St. Louis Medical Society has appointed of its own volition a committee of practicing psychiatrists to be available whenever called upon for advice by either city or state. It is felt that such a committee would be a valuable permanent adjunct to the present or any other system.

Extramural Psychiatry in St. Louis.

Neuropsychiatric private practice in St. Louis has developed along much the same lines as in other cities of this section and with

very few outstanding features. Dr. Jerome K. Bauduy and Dr. C. H. Hughes were the first two specialists in the local field, launching the specialty soon after the Civil War. The interest of both was, it appears, predominantly psychiatric. Dr. Hughes founded *The Alienist and Neurologist* which was announced as designed to instruct the general practitioner in neurology and psychiatry and which, it is worth noting, continued publication for some forty years. As the city grew the number of specialists increased and the preparation of individuals improved, several taking courses in European centers. A great deal of the psychiatric activities has been centered in the two medical schools of the city, St. Louis and Washington Universities, although neither has any special psychiatric establishment.

For some years the primary interest of the city's neuropsychiatrists was obviously in the sphere of organic neurology while psychiatry remained a side line of practice but not of study. But in recent years the trend has been in the other direction, the younger generation being more interested and better trained in psychiatry. There is no psychoanalyst in the field. Dr. F. M. Barnes has confined his work to psychiatry and, incidentally, in 1923 produced a text book of psychiatry which was adopted by a number of medical schools in this country and abroad.

For many years one of the dominant figures in the St. Louis field, as indeed in the entire country, has been Dr. Charles G. Chaddock, still widely known because of his contribution of the external malleolar and other signs to the neurological examination. In his early days Dr. Chaddock translated Kraft-Ebing's three works, *Insanity, Psychopathia Sexualis* and *Hypnotism* and von Schrenck-Nötzing's *Suggestive Therapeutics,* as well as writing or contributing to works on psychiatry and legal medicine. For many years Dr. Chaddock made a practice of spending his summer vacation periods in the clinics of Paris, Babinski's being his favorite. A great student and a linguist of parts, whose pastime is the reading of old French, Dr. Chaddock has based his continual original investigations upon a thorough knowledge of developments in all lands. Even now, although for several years in semi-retirement, Dr. Chaddock continues to conduct studies on new reflexes. Such attainments and such unswerving scientific interest are rarely encountered and it is the plan of the St. Louis committee to make

the forthcoming meeting of The American Psychiatric Association an informal tribute to Dr. Chaddock.

There are a number of neuropsychiatric divisions in connection with hospital out-patient departments and the city runs a child-guidance clinic. Several of the general hospitals have wards with barred windows and doors for disturbed patients. Alexian Brothers Hospital conducts quite a large department for male patients and St. Mary's has a useful ward with inconspicuously barred windows but without locked doors, where patients may be kept in safety without knowing they are really in a neuropsychiatric division. A comparatively recent development is the opening of numerous nursing homes, consisting usually of a house in charge of an enterprising nurse, where mildly psychotic patients may be kept at reasonable rates. This development really amounts to unofficial family care.

The Missouri Welfare League, founded in 1920, of which the guiding spirit is Miss Carol Bates is devoted to the improvement of the penal institutions and the prevention of crime. The membership is about 400. The League has worked faithfully against discouraging obstacles and has to its credit the Intermediate Reformatory, Algoa Farms (1927) and numerous minor reforms and benefactions.

The Missouri Association for Occupational Therapy conducts a school, one of five in the United States and Canada, is very active in placing occupational therapy in the various hospitals, private and state, and conducts a home service department for homebound patients. Miss Geraldine Lermit is the very capable director. A quite large workshop for out-patients, private and clinic, is supported by the Junior League. Some years ago a building on Scott Avenue worth about $100,000 was donated for the use of the Association and Workshop.

St. Louis has a branch of the Mental Hygiene Association which is active in educational work for the public.

RELATION OF TRAUMA TO MENTAL DISEASES.

By ABRAHAM MYERSON, M. D., Boston, Mass.

In medicolegal practice, the question frequently comes up of the relationship of an antecedent trauma to a subsequent mental disease. Trauma as related to the group of conditions, called the traumatic psychoses, needs no consideration at this point further than to say that in these cases trauma to the head is usually considerable, and the establishment of a mental disease of a more or less separate type is immediate. There are classical studies upon this condition.

Nor do I take up at this point the traumatic neurosis with all its difficulties in establishing cause and effect. An emotional state engendered by pain, fear and, generally speaking, physical and mental suffering may logically be said to establish a neurosis, since we seek for the causes of this condition mainly in environmental relationships admitting, of course, that a peculiar constitution predisposes.

Nor am I considering the relationship of trauma to general paresis. We have here the typical situation of a pre-existing pathological condition and then the question of something which lights up or sets off further pathology to the point of the establishment of a psychosis. My own practice has been to disregard as etiologic in the precipitation of general paresis any trauma except to the head and to consider as precipitating or accelerating only those injuries which create unconsciousness and may be assumed to have changed brain conditions in an organic way.

It is the relationship of trauma to such psychoses as manic-depressive and dementia præcox that a rather disastrous situation exists at the present time in the courts—disastrous I mean to justice and to the prestige of psychiatry and psychiatrists. Here we have two conditions which, so far as our present knowledge goes, have no definite relationship to environmental conditions, in which heredity and constitution may be definitely stated to be the only factors of etiologic moment of which we know anything of importance. That heredity plays a rôle in the production of manic-

depressive psychosis need no longer be doubted. That constitution, whether hereditary or not, is the great factor in dementia præcox is, on the whole, unanimously proclaimed in the psychiatric literature. There is, so far as we can see it at the present time, a certain inevitability about these two mental diseases which sets them off from the rest of the psychoses and which has given rise to their classification as endogenous.

That an external event may precipitate either or both of these types of mental disease is, to some extent, in question. It may be assumed for the purposes of the commonsense relationships of law that where there is a serious injury resulting in severe pain and suffering, and where the mental disease—manic-depressive or dementia præcox—follows in rapid sequence that there is some relationship between the trauma and the psychosis. Thus, where a man, as in one of my cases, has been thrown from a ladder by the impact of an automobile, fallen 20 or 30 feet, fractured his skull, been unconscious for 24 hours, and then has shortly developed a dementia præcox syndrome, it would be unreasonable to state that the previously industrially efficient and socially adequate individual had not been affected by the trauma in sufficient degree to cover the legal requirements of precipitating or accelerating cause.

If an individual has been subjected to severe emotional stress and strain, let us say, by a fire in the building in which he works, has inhaled much smoke, been drenched with water, but receives few burns, and then develops an acute maniacal excitement which goes on finally to a typical manic-depressive attack, it can—I think—safely be said that the emotional strain, the excitement, the fear, precipitated the cyclothymic individual into a manic-depressive psychosis.

I cite three cases in my experience in which it seems to me unreasonable to assume that a relationship existed between the trauma and the experience and the subsequent psychosis. Let us take a situation such as the following:

CASE 1.—A woman, who has within four days been delivered of a fourth baby, orders some pie which is brought in from a neighboring chain store. Unfortunately, there was a small tack in the pie. The woman bit into it and, according to every account, the most substantial injury which she obtained was possibly a slight cut of the gum, which a physician saw within an hour and considered of trivial importance and, in fact, which healed up without any sequelæ. Just what happened in the intervening three or four months is

open to doubt, in that the family claimed she became increasingly nervous until three days before her admission to a state hospital. On that day she woke up, thought the religious pictures in the room were alive, became wildly excited and agitated, and was committed to a hospital where she remained for about a year, running through a cycle which was diagnosed as manic-depressive psychosis. The family omitted to make any mention of the tack injury at the time of her admission to the hospital but laid stress at that time upon a financial disappointment. It seemed that the patient, who was a bootlegger, had accumulated some money, was negotiating for a house, and through some misadventure the bank refused to give a mortgage. She became quite excited, and it was a few days subsequent to this that the manic-depressive attack appeared.

At the trial two psychiatrists of excellent standing testified on substantially this hypothesis—that the bite into the tack was the precipitating cause of the psychosis, excluding as relevant or important the factor of the pregnancy and the financial disappointment, and taking into account that the record of the hospital in which the patient stayed a year laid no emphasis whatever on the injury by the tack and laid its emphasis upon the financial disappointment as given in the history by the husband of the patient.

It seems to me that here is a violation of anything corresponding to the laws of cause and effect, if we accept, as psychiatrists must do, I believe, that there is a cause and effect in psychiatry. It may be that there is universe of variables behind any case of general paresis, but without any invasion of the spirochete pallida within the brain or the body no psychosis develops. So we state, perhaps naively, that the general paresis is *caused* by the spirochete pallida. A man ingests alcohol, develops a psychosis in which he hears voices calling him names, becomes quite agitated and excited, believes that he is being persecuted, and as the effect of the alcohol wears away, he recovers. We say, then, that the alcohol caused his psychosis although we recognize that playing upon that individual was a universe of things which may have related to the psychosis, but we also believe, as a result of clinical experience, that without the alcohol there would have been no psychosis. In other words, psychiatrists living in a practical world seek cause much as a plumber will find the cause of a leak in a pipe, namely, the fact that the wall of the pipe has rusted away in a certain place through which the water finds exit. Accepting, therefore, the concept of cause and effect as playing indispensable rôles in our thinking and in our handling of patients, in how far does a manic-depressive

attack, lasting a year, and which comes on three months subsequent to the trifling injury inflicted by the tack in question stand in the relationship of effect to the injury as cause?

Manic-depressive is enormously constitutional. That can be stated at once. The main cause, so to speak, lies in the nature of the individual. By the side of this fact, whatever environmental exigencies occur are, on the whole, minor. Thus, it stands in a different relationship of cause and effect to the fracture of a skull by a brick. The thickness of the skull plays a rôle in the fracture which results from the impact of the brick upon the skull, but we cannot conceive of the skull being fractured without the brick, and skulls are not fractured unless there is external violence; and so we may say that external violence is the environmental cause of the fractured skull. We cannot say the same of manic-depressive psychosis. Here we may also contrast it to a neurosis following arduous exertion, great fear and worry, and a tense and exhausting social situation. Undoubtedly, not all persons would develop a neurosis under such circumstances. Nevertheless, the situation is of importance in bringing about the neurosis, at least by our present clinical criteria.

But the cause in the case cited above is trifling. It is too disproportionate to be given a value. If a chain of events is set up between the injury and the psychosis, the chain has too many weak links. It is fundamentally too artificial to be of validity. Mo· over, a statistical study of manic-depressive psychosis would show no other cases precipitated by such injuries, or so few in comparison to the total number of manic-depressive as to relegate the rôle of the tack to that of coincidence. Whatever logic is used in the case excludes the tack as of importance. It cannot be excluded as having some bearing, but in view of the general nature of manic-depressive and the total constellation of events surrounding this particular case, or any similar case, the most that can be said is that of a possible minimum relationship which does not cover the legal necessities of probability.

Case II.—Is that of a young man, 21 years of age, who for several years had shown character peculiarities. He had run away from home on several occasions and, in fact, found it impossible to live at his home. He was definitely of a closed and shut-in type. It was testified to that on the day before the incident which was claimed to be the inciting event for his psychosis that he

had been seen to go up and down in an elevator on two or three occasions without any definite or known purpose. He had no friends; his participation in social affairs was nil. On a certain morning, fire broke out in the plant in which he was employed; not in the building in which he worked, but in a distant building. There was considerable excitement; no one, however, was injured or burned. The boy helped drag some hose, and from a very safe distance helped throw a stream of water upon the burning building. There was some degree of exposure to smoke; some of the water of the hose dripped upon him and wet him. He was not struck; he was not suffocated; he was exposed to no danger. The next morning it was noted at his home that he acted peculiarly. He would not eat; he went to the factory, stayed around a little while, talked incoherently, spoke of fire, took poses, acted as if he were hearing voices, and within 24 hours was in a state of great excitement, as a result of which he was taken to a hospital.

In the hospital he assumed catatonic poses, was resistive, was in the tubs for weeks, had to be tube-fed at times. Finally, he simmered down to a case of dementia præcox, and at the end of five years he is still in the institution, disoriented, deluded, and undoubtedly permanently psychotic.

It was testified in this case that the excitement and the trauma (which consisted of being wet and inhaling in a wide open space some CO_2) precipitated dementia præcox; that without this excitement the individual might have gone along for years without having his psychosis, although undoubtedly he would, sooner or later, have presented his mental disease.

Here we deal with a situation probably even more against the realities than the case of manic-depressive cited above. Whatever we know of dementia præcox indicates that an individual who has shown the schizophrenic constitution or the shut-in personality may suddenly develop a psychosis; that this is a common beginning rather than one that is exceptional and especially in the case of the catatonic onset. In other words, there was nothing in this case that differed from the clinical history of many a case, uncomplicated by medicolegal difficulties. Secondly, the result was, on the whole, disproportionate to the cause, especially in dementia præcox. That is, we can safely state that even the unusual environmental relationships, such as those which occur during war, stress, strain and excitement do not seem to increase the number of cases of dementia præcox; that, on the whole, it proceeds independently of such situations. On this basis, we can state further that the psychosis and the fire were coincidental rather than standing in any cause and effect relationship. Furthermore, if it is assumed that the individual was in such a delicate state of balance, so to speak,

that the fire upset him into a psychosis, then we can also affirm that it is inconceivable that he would not have been precipitated into that psychosis within a relatively short period, and that the fire had an effect possibly, but one which was lost and merged with the total picture in a very short time. In other words, the duration of the effect caused by the fire can be minimized logically into a very minor matter.

Post hoc propter hoc is as reprehensible in psychiatry as in any other clear thinking branch of science. It would have to be shown that a considerable number of cases of dementia præcox are precipitated by excitement, such as that of a fire, before this one case can be set up as establishing a basis of causal relationship between the fire and the subsequent psychosis.

CASE III.—Is that of a man, 52 years of age, who has at present an involutional type of psychosis. The patient believes he has syphilis; that he is being punished for an adulterous relationship which dates back to his thirtieth year of life; that he is to be taken out and killed; that he has caused all the evil of the world; that he has no bowels; that the world is definitely altered, because of his sins. Especially does he attribute to his masturbation as a youth the sad condition of his son, who is a patient in the same hospital and who is classified as a case of dementia præcox with sexual perversities. The cause of his present psychosis is attributed by his relatives and substantiated by the statements of physicians of different types, and especially one psychiatrist, to the fact that he had a herniectomy three months before his entrance to the hospital. The herniectomy was successfully performed; the scars are inconsequential; the net result is very definitely a successful operation.

The history of the man shows that for at least six months prior to his admission to the hospital he had been greatly worried, depressed and agitated. For three months before the herniectomy he had had nose-bleeds of such severe type that he would have to go to a hospital. When he visited the hospital in which he is now incarcerated, it was noted that he seemed very gloomy and brooding, and tended to accuse himself because of his son's condition. On the commitment paper the wife's statement is to the effect that three months before the herniectomy he had been brooding; his sleep was disturbed; and he was self-accusatory. The industrial history of the man shows that he had been losing ground as a worker for a period of six years prior to the operation. Up to that time he had worked steadily. He had a record of 14 years in one factory, and six years in another. From 1928 he had had half a dozen jobs, had been out of employment a great deal, and had worked at occupations requiring less skill and receiving much less pay than his previous occupations. The herniectomy was for small bilateral herniæ of indirect inguinal type said to have followed his occupation.

Excluding from our consideration whether or not the herniæ were due to his occupation, in how far can it be stated that in a

case of this kind, the operation produced, or was a factor in, the involutional psychosis. In the first place, there is clear-cut evidence of downward trend in the man's personality and in his social adequacy for a considerable period of time before the operation. In the second place, at the time of the commitment the operation did not seem of sufficient importance to the family or the committing physicians to be even mentioned. In the third place, we can safely state that in such breakdowns as this environment plays but a small rôle; that rich and poor, successful and unsuccessful, have involutional psychoses of this type, and that there is enough in the family history to indicate his general constitutional weakness.

It is possible, so it seems to me, to set up the operation as an aggravating factor. It does not seem to me, however, that it can be stated as a probable factor. In other words, where constitution is the most important etiology, we have to assume something extraordinary and something which breaks down what seems to have been a perfectly intact individual beforehand, before we can postulate any relationship between the event and the psychosis. In this case, the condition is clearly lacking for the establishment of such a relationship. The individual was sick before and the event itself was not extraordinary, nor in the ordinary course of events to be regarded as of serious moment. In fact, the relief from the herniæ would certainly more than offset whatever trauma the patient was exposed to by virtue of the operation.

In relationship to these situations, I have established for myself the following guiding principles: first, that wherever a psychosis is mainly of constitutional origin, and where medical science is as yet unable to find any direct environmental relationship, I am reluctant to state that any environmental event is a probable exciting or precipitating or aggravating cause. If, however, an environmental event occurs which is of serious nature, such as severe trauma or of great emotional significance, and if it can be shown that the psychosis occurred within a very short period, I am willing to admit some relationship. This is true, however, mainly of manic-depressive psychosis. I am willing to admit as a probable cause a psychological event as a cause for the occurrence of this psychosis. Manic-depressive is mainly an affective psychosis. It is, therefore, perfectly logical to assume that a serious emotional situation, such as great strife between a husband and wife, some

profound humiliation, some extraordinary fear may, if immediately followed by a manic-depressive state, be a precipitating or aggravating cause. I am unwilling to admit that we have any reason to assume that this is a factor in the precipitation of dementia præcox, largely because the schizophrenic state is not, so far as we know, emotional in its origin, and that the personality alteration is of more profound nature than the change which takes place in manic-depressive psychosis.

DISCUSSION.

Dr. Bernard Glueck (New York City).—Whenever I listen to a presentation of this topic at the hands of my medical colleagues I cannot escape the conviction that we, as doctors, bend backwards in the expression of leniency towards the place in this problem of legal medicine or medico-legal practice of our friends, the lawyers.

If we were more realistic in our approach to this question we would recognize that there are two distinct aspects to it, one a strictly scientific aspect, and the other essentially a problem in ethics. By training, tradition and experience the lawyer approaches these questions with a contentious set of mind. He spares no effort to force the medical expert into a similar position, and no matter how determined the doctor is, in such situations, to adhere strictly to the scientific aspect of the situation, he commonly finds himself, before he is aware of it, in the position of partisan to a contested issue.

It seems to me that there is no promise of a solution to this question unless we as physicians come to insist definitely that whereas there are honest differences of opinion possible in the field of medicine and between doctors, our problem, nevertheless, is not a legalistic and contentious one, and that to the physician, at any rate, the idea of experts of both sides cooperating in the discovery of the truth at the bottom of a medico-legal issue is a perfectly logical and consistent attitude. The lawyer seems to have an insuperable difficulty in accepting this point of view, and insists upon the doctor aligning himself with one or the other side of the question.

For the past six years or so I have regularly refused to participate as an expert in any medico-legal issue unless I could testify for both sides, that is, unless I could confine my function to an examination of the facts and a presentation of them, irrespective of the effect on one or the other side of the case. Naturally, I have been consistently informed that my services, if they were to be of that type, were not wanted.

Last autumn we had a symposium at the New York Academy of Medicine on the question of the relation of psychiatry to the criminal law. My *vis-á-vis,* the gentleman who represented the legal side of the question, a professor of criminal law in one of the leading eastern universities, stated, among other medievalisms that he had to tell us about, that he could not

see why a psychiatrist should have more justification for the expression of an opinion on criminal conduct than say, an architect. He also stated in the course of his presentation that such questions, for instance, as social security, cannot stand in the way of meeting the requirements of the law as it stands. You are welcome to draw your own conclusions from statements such as these, made by a representative of the legal profession, concerning the attitude which modern law has towards this problem.

In my opinion the solution of this problem will be very slow in coming, although theoretically it should be easily achieved, if we are to wait for a fundamental change in the philosophy and outlook of the criminal law. We have it, it seems to me, rather in our own hands to solve this problem if we, as physicians, simply refuse to participate in those legal fictions which regularly characterize and dominate procedure in medico-legal practice. It is this that I refer to as the problem in ethics.

Two very interesting and important cases have been recently disposed of in the state of New York. One is that of a man who had committed a number of murders of small children, and in addition has practiced for many years all sorts of strange and morbid masochistic self-inflictions. I did not examine the man, but from the facts that were available to the public at large any ordinary layman would have been impressed with the pathology involved in this situation. Nevertheless, we had the spectacle of two groups of eminent and capable psychiatrists permitting themselves to be dragged to the level of an ugly partisanship, the one insisting that the man was insane, and the other that he was totally responsible for his crime, the latter succeeding in having the man committed to the death house at Sing Sing.

The other case was that of a man who was about the most profoundly distorted individual, the most glaring polymorphous pervert, who for many years lived out his perversions in a cruel and dangerous manner to society. He was suspected of murdering his wife, and when arrested in one of the European capitals quite an arsenal of instruments of torture, which I saw exhibited at the psychopathic hospital where the man was under observation, was found in his possession. Now there may have been room for doubt as to the precise psychosis from which this man was suffering, but there certainly could be no doubt in anyone's mind that we were dealing with a man whose morbid propensities constituted a distinct menace to society, and a realistic approach to the problem would have been to confine this man to a mental hospital until such time as he gave reliable evidence of being cured. Instead of this he was sentenced on a charge of bigamy for some two years or so, and is probably ready to resume his nefarious practices in a free community at this writing. But our professor of law tells us that questions of social security cannot stand in the way of meeting the strict requirements of the law.

DR. L. P. O'DONNELL (Orangeburg, N. Y.).—I should like to ask Dr. Myerson whether he considers precipitating factor and cause as the same thing, because that is the point they play on in court. I have been in court

on cases of dementia præcox that, according to all testimony and from what the families and neighbors knew, were adjusting well until the time they had an accident when they developed dementia præcox. It seems to me that the trauma in such cases is a precipitating factor. When you go to court you will find any number of good psychiatrists who will disagree with you by stating that trauma is not a cause of dementia præcox. I should like to know how Dr. Myerson handles that situation.

Dr. Abraham Myerson.—It may be of interest to know that a group, headed by myself, in studying the sterilization situation in the United States, studied the statistics of Massachusetts as a typical state, well developed in its psychiatric activities and facilities, as to the effect of the depression and in fact of other exigencies, upon the commitment rate. During the past five years the commitment rate in Massachusetts has definitely dropped insofar as manic-depression, dementia præcox, and psychoses of that kind are concerned. That is, in this period of emotional stress and strain there has not been a rise in the commitment rate. That goes well with his statement about the effect of the war, and, on the whole, places these psychoses within that rather vague, but still the only thing we have to deal with, the endogenous something or other in which the state of the individual is the most important matter.

As to Dr. Glueck's remarks, I am afraid that his is counsel of perfection, in large measure, *viz.*, that we first lift up the standard of ethics and then the law and the legal situation afterwards. In Massachusetts without any rise, so far as I know, in the actual ethical level of the psychiatric community, the passage of the Briggs Law did away with most of the conflict to the courts about criminal matters. I don't suppose that we became more virtuous but I do know we acted better. So with this particular situation, we can't enter the court with the idea that we are going to act as an elevating influence, and so we have to work within the framework of the law, which is that of conflict and battle. Two opposing sides meet, each presents his case before an umpire and referee and you have a medieval situation in which a champion appears for one side or the other. But within that framework we can still introduce modernity of opinion and attitude. One new technique would do away with a great deal of discrepancy, namely, the presentation of the same hypothetical questions to both sets of experts and then let the jury hear the answer and judge which sets of facts is correct.

It is perfectly true that the legal framework is in fact medieval, nevertheless, it has elasticity and there is within it the germs for a better status of affairs for psychiatric testimony.

What I wanted to do, so far as this paper is concerned, is to somehow or other, at some time or other, have this Association establish itself in favor of double hypothetical questions. As to passing on facts, that is against the whole experience of Anglo-Saxon law. The expert can only pass on a hypothesis. Only the judge, if there is a judge alone, and only the jury, if there is a jury, may pass on facts.

With regard to Dr. O'Donnell's question as to the relationship between a precipitating factor and a cause. Well, if you want to get into determinism, there isn't any cause and everything is a constellation of variables which operate upon any individual event within the universe of affairs, and nothing is caused by anything else, all is a continual ebb and flow. But, as I stated before, psychiatrists are practical men, living in a practical world, and dealing with practical concepts. A cause is something established as something without which the thing under consideration could not happen—the spirochæta pallida in the case of general paresis; the injury to the head and the epidural or the subdural hemorrhage which follows, the knife thrust which penetrates into the eye and severs the optic nerve—these are causes. In dementia præcox we have no cause in any established sense. We can only say that constitution is a predisposing configuration within the individual himself. Then an external event can at most only be a precipitating factor, and it can only be a possible or a probable precipitating factor. It seems to me that the magnitude of the external event and the time relationship of the agent and the psychosis must establish the relationship of the trauma or the external event in precipitating the psychosis.

To me, *hoc ergo propter hoc,* is the great danger. Coincidences occur at all times. Use the same clinical judgment that you would if the case were not medico-legal and no lawyer were there to put hypothetical questions to you. Ask yourself, do the statistics of psychiatry as you know them, and your experience substitute the belief that a slight cut with a tack may precipitate manic-depressive psychosis? If you had never seen such a case before, then you can say this is not the probable cause. The answer is simple, the logic is simple, but the results would be simply fine.

REMARKS CONCERNING THE DEVELOPMENT OF APPLIED PSYCHOPATHOLOGY.

By ERWIN STRANSKY, M. D.,

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Applied psychopathology, in a larger sense, has been in existence for a long time. In some regards it has been practiced since ancient times, even if subconsciously. But surely it was Freud—and that may be granted by a non-partisan of his doctrine—who, with his school, has always shown the possibility of understanding psychological states and occurrences by psychopathological methods in many relations. The same may also be said by homologism about the related schools of Jung and Adler. But there are also others who have done research work, as for instance, Liepmann, Hughlings Jackson, and Ribot, and in America, last but not least Meyer, Kahn (formerly in Munich), and Schilder, who formerly worked in Vienna. All these, if in different senses, have pointed out, although not always directly, how much normal psychology has to learn from psychopathology. Among living clinicians in German-speaking countries, we may mention especially Bleuler and Kretschmer, to whom we owe much in this sphere.

All this being granted, it remains to say that—as far as I am able to see—applied psychology first found a formulation as a special program of work in 1918. In the *Allegemeine Zeitschrift für Psychiatrie*, Vol. 74, I developed a sort of outlook on this subject in general terms. I pointed out that it was necessary to comprehend and combine the different points of view resulting from the findings of psychopathological researches. It was in this connection that I coined the term "applied psychiatry" (*angewandte Psychiatrie*), in a more precise sense "applied psychopathology" as I prefer to say and to write since then. This term was immediately accepted by Morgenthaler of Berne who advanced the idea later by editing a journal, in collaboration with Jaspers (then replaced by Forel), H. W. Maier, Repond and myself. Among other remarkable papers, this contained the famous treatise of Rorschach on the "Interpretation of Forms" (*Formdeutversuch*).

In the year 1920 a new step was inaugurated by me in this direction. I founded, here in Vienna, the Association for Applied Psychopathology and Psychology, with special aid of Dattner and Roffenstein. This was dedicated to the idea of clarifying the methods by which the results of psychopathological research could be applied to research in other directions; we held scientific lectures and discussions [1] on the one hand, and on the other, we intended to create a sort of seminars and research collaborations between psychopathologists and psychologists, as well as between psychopathologists and research workers in other fields. It was J. Roffenstein who, in contact with me, first tried to realize the ideal of collaboration in seminars. But his early death, caused by a tragic street car disaster, delayed the further development of this undertaking. Soon after, I gave the presidency of the association into the hands of M. Pappenheim, under whose leadership we turned to other tasks. The most important event of this period was the meeting of the first international congress of applied psychopathology and psychology in 1930 at Vienna. This was a most interesting scientific gathering and its impression will remain in the memory of everyone who participated, especially those actively engaged.[2] It was then that the value of our ideas which had been matured by criticism became apparent to a larger scientific public. In consequence, a permanent committee of Austrian, German Empire and Swiss research workers was formed, including psychopathologists, psychologists and others. As one of the results of the meeting, the committee was to arrange as soon as possible for the next congress. Although we were close to the realization of this aim, European circumstances have prevented it.

Since Pappenheim, whose merits have been mentioned, moved away from Vienna, the leadership of the association has returned

[1] So, for instance, we arranged the first great public discussion in Vienna between psychoanalysts and the school of clinicians, inaugurated by a discourse by R. Allers (edited by myself and Dattner, published by S. Karger, Berlin, 1922). We have also had other discussions, partially published in the *Zeitschrift für die gesamte Neurologie und Psychiatrie* and in the *Wiener Medizinische Wochenschrift*. These all concerned problems of general and applied psychology, religion, sociology, law, ethnological and race-psychological problems, etc.

[2] The report of this congress was published by S. Karger, Berlin, 1931, edited by H. Hartmann, M. Pappenheim and myself.

to my hands (1934). From this moment I repeated my former efforts to realize a discussion in seminars and to establish collaboration in research. In this, I was supported especially by Mrs. Auguste Flach, one of the most diligent members of the seminars, a pupil of Professor Bühler and also a resident member of the psychiatric clinic of Professor Pötzl. I was also aided by Dr. K. Th. Dussik, a young physician of this clinic who is very studious and talented. The *via regia* for the continuation of the embryonal plans of the late Roffenstein seems to be to knit a new and strong bond between psychopathologists and psychologists. It was a source of happiness for us that, particularly at this time, two important schools of research in Vienna, headed by two important leaders, in consequence of their special motives of research tended to find a stable contact between their schools, and therefore were disposed to give their hands upon the occasion offered by us and to use our association as a common platform to serve for the realization of this collaboration. One of these leaders is Otto Pötzl, the clinical successor of our great and famous master Wagner-Jauregg. Pötzl, with his interest especially in research in brain pathology, has always favored psychological methods. The other leader is Karl Bühler, the head of the Vienna school of psychology, who was always convinced of the necessity of contact with brain pathology and psychopathology, since his special interest, the psychology of language, gives a special disposition to such a contact. We thus succeeded in creating a stable seminar for the discussion and research collaboration between these two schools, under the auspices and through the administration of our association, which at the same time does not neglect its other activities. This collaboration has been existing and active for two years with remarkable success, and is managed with a ridiculously small amount of money. This makes a sort of surrogate for a public seminar, organized on a larger scale, whose realization in our poor Central Europe has been, of course, a Utopia. Such a seminar, in German-speaking countries as perhaps in foreign lands,[3] appears to be unique. The subjects for discussion are determined upon at the beginning of each academic year by Professor Pötzl and Professor Bühler with the assistance of myself. Out of the soil of

[3] I have been informed that a similar organization has been formed in America within the last few years, on a larger scale, with a public subsidy, but I am not in possession of positive facts; I mention it, in any case.

these collaborations and discussions have already grown a remarkable number of positive results.[4] These were useful for us psychopathologists, but also thanks to the great number of demonstrations of clinical cases and anatomical preparations—for the psychologists as well: they found a vivid contact with the clinical material, which was quite a new thing for the greater part of them and of special importance for them.[5]

But of course we intend to extend this collaboration by the addition of research workers in strange fields; the most important of these till now, who made a comprehensive and splendidly illustrated report in our seminar, was Professor Oswald Menghin, the famous authority on prehistoric times, who is at present Rector Magnificus of the University of Vienna. He spoke about the art of paleolithic man, in connection with which Dr. Gottfried Engerth, assistant at our clinic, reported on productions of design and sculpture by patients with mental disease. One of the results gained by comparing these two reports was to show that the somewhat uncritical manner of comparing psychotic patients with archaic men as is very often done to-day is far from passing muster. There are many similarities but not quite complete homologies, Perhaps I may be allowed to mention in this connection a report made to the seminar by myself concerning the efficiency curve (*Leistungsgefälle*) in special tests on normal, psychopathic and psychotic subjects.[6] Recently we have benefited by very important reports of Bühler and his pupils and of Pötzl and Hoff ("Zeitrafferphänomen") then published in the *Zeitschrift für die gesamte Neurologie und Psychiatrie*. We have also heard important papers by Pötzl and the zoologist Konrad Lorenz and by Hoff and the

[4] These concern especially the subjects of aphasic, schizophrenic and other pathological disturbances of speech in comparison with the psychological researches on speech, especially those of Professor Bühler and his pupils. The discussions were augmented by personal reports and frequent remarks of the two leaders, Bühler and Pötzl and by those of the more important workers of these two schools (Kauders, Hoff, Stengel, Dussik, as well as Brunswick, Fränkel, Wolf, Sonneck, etc.; the first-mentioned—Kauders—is recently professor of psychiatry and neurology at the University of Graz).

[5] See the current reports of the seminars in the *Wiener Medizinische Wochenschrift*, 1935. Two reports concerning the year 1934 have been already published.

[6] Then published in the *Schweizerische Archiv für Neurologie und Psychiatrie*, 1935.

physiologist Fleischmann (concerning different problems of comparing instinct-psychology of men and animals.)

It is not my intention to repeat here what I have said on other occasions on the same subject.[7] I may be allowed to repeat my conviction that such collaboration with psychopathology is very useful for *nearly all* practical sciences dealing with human activities. It is, of course, not deniable that psychopathology receives stimulation from all sides; but it is certain that it is able to repay this stimulation with compound interest. So, for instance, we have seen that psychopathological researches have greatly aided eugenics, which not only is an object of interest for physicians and hygienists, but also has become a part of political science. We see that these researches are growing beyond their original limits and are aiding all of the practical social sciences in the largest sense. In Germany, it is to be seen now, the merits of psychopathology have been appreciated. Consequently an important influence has been given to physicians and especially to psychopathologists in legislation which has been enacted, such as previously obtained in no other land in the world. The great value of this fact does not seem to be diminished by the criticism which it is necessary to apply to this or that detail of such legislation. In common and scientific fairness, it is the duty of the physician or psychiatrist to recognize this fact and to state that it marks an undeniable progress in the political and cultural history of mankind—even though one, as the writer of these lines, is separated by facts of an anthropological nature (and not only by these) from certain basic ideas now governing Germany's mentality. But fairness and objectivity are, and remain forever a special *point d'honneur* for the research worker and for the physician; these compel him to recognize legitimate merits in men and ideas, even though they inflict, in other matters, pain on himself in some relations. Intensive collaboration with psychopathology could, moreover, be very useful to other branches of study which give less direct occasion than it does for practical knowledge of the mind. Psychopathology could, in fact, be useful to all those sciences which are concerned with human beings and human relations, because no human relations exist even in the economic

[7] See, for instance, the lines published by myself on the theme "Angewandte Psychopathologie" in the *Psychiatrische-neurologische Wochenschrift*, 1932, No. 16/17.

sphere which do not have a psychological basis, and partially psychopathological aspects. Psychology, however, without psychopathological knowledge is only a torso without its other members.[8] The forensic sciences have been aware of this fact for some time, and have applied it. Morgenthaler has had the courage to point out directly that, in public affairs and even in political life, psychopathological knowledge and its application is exceedingly useful. Let us, for instance, not neglect to consider, among many other things, the psychology of the masses.

The collaboration existing for some time between psychopathology and the forensic sciences, especially criminology, has demonstrated a fact of prime importance. Whenever the workers in two fields of research meet to form a sort of *entente cordiale*, this generally culminates in a comparison between the end results in each field. The two fields are often by their natures different in regard to their origins as well as the objects of their research, and the cooperation proves much less advantageous when this *entente* is abused for an uncritical meddling concerning their methodologies. The motto must be " separate marching, but a united front." Each field of research must choose its characteristic (*arteigene*) methods and not those which are foreign to it (*artfremd*). The mutual stimulation while being kept as active as possible must be limited by an agreement for mutual benefit, especially as concerns the ends in view and choice of the questions discussed. The comparison and exchange of results then obtained enrich both fields of work. This is a matter which should be understood by doctors of philosophy as well as by doctors of medicine and psychiatrists when they intend to make contact with each other. We understood this, as an important lesson of our seminar in regard to the relations between psychology, psychopathology and the study of prehistoric times. As I pointed out, it is far from being an advantage for those

[8] It would, of course, be a great mistake to conclude that *all* human relations between human minds are to be understood *schematically* by psychopathological points of view. This was the great nonsense brought about by the so-called pathography. It was in consequence of this that psychopathology with its buried gold had a bad reputation for a long time. Tiling, the ingenious precursor of Kretschmer, had been criticized, legitimately by Cl. Neisser, for he had—allegorically—regarded psychology to be a sort of appendix of psychopathology; such and similar misunderstandings must be avoided.

sciences dealing with human affairs when they neglect contact and collaboration with psychopathology. But it is equally bad if this very necessary collaboration *pour mieux se connaître* should make confusion, since, as a matter of *methodology*,[9] the occasions when such mutual influence in *methodologics* is useful are, I would not say merely inconvenient, but relatively restricted. This presupposed one must state that psychopathology is a province of medicine which has the most extensive frontiers and relations with other medical fields. For instance, mental hygiene, which came to life in America, is, as Kauders has pointed out, nothing else but a sort of applied psychopathology. In addition, psychopathology is related to widely different branches of science, beginning with theoretical and practical psychology and including history, research in religion and the development of culture, jurisprudence and the study of public and private human relations in the widest sense. The noble rôle of applied psychopathology is that of a mediator between these different fields. Its results thus serve mankind in health as well as in disease.

In closing, may I express my gratitude to Daniel C. Dawes, M. D. Yale University, now attached to the Vienna Psychiatric Clinic, who kindly helped me with my English style, which, of course, is not quite fluent.

[9] Compare the reports on the two meetings for synthesis in medicine at Marienbad, Dresden-Leipzig, 1933 and 1935, publ. Th. Steinkopff (arrangement by M. Sihle, edited by Th. Brugsch).

THE BODILY ORGANS AND PSYCHOPATHOLOGY.*

By SMITH ELY JELLIFFE, M. D.

I am assuming that this audience is somewhat familiar with at least the term psychoanalytic psychiatry and that the general outlines of its principles are not unknown to many of you. Hence I shall but very rapidly skim over some of the high spots of its developmental history before I plunge into the subterranean regions of unconscious dynamics and the resulting possibilities in aiding, abetting or producing what is familiar to all as certain types of organic disease.

To trace in detail the complete history of the search for the connections between man's feelings, and the reactions of his bodily organs would take us not only far afield, but would occupy not hours but weeks. That ancient collection of wisdom, the Bible, is filled with such material. Hence if only the merest fragments of this story are gathered it must be left to your own individual backgrounds to fill in the gaps.

Darwin's conception of evolution in its general application, offers the first step in the genetic ideas which have fashioned the psychological sciences which lead one into the psychoanalytic story. In short there is a history behind everything. That history has had a development which we would like to believe is orderly and not solely a matter of chance, although we know that the trial and error method is one of Nature's methods.

Disease—in the large—is not something that just happens; a visitation from an angry god. It has a nucleus of determinism about it, a more or less orderly progress and its coming to be is, we hope, capable of being unravelled or analysed and thus partly understood. Nature is full of compromises, of more or less stable adjusting equilibriums between conflicting forces, and everything that happens—all events—may be understood, and handled, with

* Read in part at the ninety-first annual meeting of The American Psychiatric Association, section on psychoanalysis, Washington, D. C., May 13-17, 1935.

that degree with which the various impinging stimuli, or causative factors become known.

Although Stephan Zweig essays to show in his delightful work on "Mental Healers" that Mesmer might really be named as the germinating individual of the psychical principle, it was with Charcot that clearer insight into the first of the psychoneurotic disorders, hysteria, was obtained. Hypnosis was, as you know, the technic then employed in its therapy, but of its understanding there was, through hypnosis, nothing. In fact hypnosis needed explaining. As you know, Freud studied with Charcot. In the fall of 1885—he was then 29 years of age—he obtained a scholarship and went to Paris and to Charcot, at the Salpétrière. He had already done meritorious work, even as a youngster of but 21 years of age (1877), in Meynert's laboratory, in his studies on the "Origin of the Posterior Nerve Roots in Ammocoetes"; on the "Spinal Ganglion and Spinal Cord of Petromyzon" (1878); on the "Structure and Origin of Nerve Fibers in the Crab" (1882) and other anatomical and also clinical studies, two of which latter, one on "Infantile Birth Palsies" (1891) and another on "Aphasia" (1891), are still, in certain points, in the lead of present day conceptions in that the evolutionary conceptions of Hughlings Jackson were either appreciated by Freud or were independently developed. He really discovered the local anesthetic action of cocaine on the eye. He was well on his way toward a laboratory career in neuroanatomy and physiology and the hopes for academic honors when he was awakened from this dream by the recognition of the antisemitic feeling in Vienna's academic circles.

He then went into practice, but even as a youth of 23, he was friendly with Joseph Breuer. From this combination came the celebrated "abreaction" idea, the talking out, chimney sweeping notion, which later became elaborated in the free association method which led deeper into a study of the psychological mechanisms of the dream. You all know of the early ideas of the significance of infantile sexual traumata in the development of Freud's ideas and in his History of the Psychoanalytic Movement can be found the essential details of the story up to 1914. From this time onward there has been an almost torrential mass of new research material which no one could condense within a short time.

A definition of psychoanalysis, such as "analysis of the psyche," is only a short-hand translation of a word—an etymology—and means little. A description of psychoanalysis on the other hand would explain the workings of a process and this means a great deal. For practical purposes, psychoanalysis is a process, or method, of studying or learning about fundamental reasons for human behavior in terms of inward drives or urges in relation to the realities of the external and internal worlds. It is an empirical experimental method of investigation which can be used, not always with complete satisfaction, to learn why and how human beings operate as totals, or wholes: why they have preferences and prejudices, why they write stories, paint pictures, believe in lucky days, or numbers, knock on wood, make mistakes, get into difficulties of money, of happiness, of health, in short, a method that can be used with varying degrees of success to learn the actual manner in which mankind's mental systems operate and bring about behavior, no matter of what kind, internal as metabolic, or external as in everyday life.

It may be used thus not only as an empirical method of study, but it also has great possibilities, by properly trained individuals, of therapeutic application in the treatment of numerous types of bodily ills. All illnesses are of the "body" in the strict sense of the word. Furthermore psychoanalysis stands for a group of dynamic psychological conceptions or ideas. It is not a Weltanschauung, or philosophy. It is essentially an inductive procedure.

In all three aspects psychoanalysis stands preëminently as the work of Sigmund Freud of Vienna. Any other type of method of study, or mode of therapy, or body of dynamic psychological principles is *not* psychoanalysis. If medicine were to adopt the methods of the "patent" or "copyright" office, all other near to, or allied with, spurious imitations or distortions of Freud's studies would be infringements, imitations, fraudulent or mendacious copies. Many of them are parasitic growths, denying the parent from which they spring and which alone gives them any real validity, even if couched in different words.

The application of psychoanalysis shows, in part, that when men and women attempt to state their beliefs about behavior situations, they almost invariably tend to fool themselves. In slang terms

they "pass the buck." In psychoanalytic terms they rationalize. They like to make the explanations seem reasonable. Man, including woman, universally indulges in autistic or phantasy thinking, *i. e.*, wish-fulfilling explanations for almost everything he does. Thus man's fancied beliefs that he always knows why he does this or that or how things come to be turn out to be largely fictional.

An ancient psalmist * said "in his haste all men are liars." While all the world recognizes that lying is a not unusual form for explanation of behavior to take, psychoanalysis prefers to use the term *rationalization* instead, meaning thereby that what is manifest or conscious in man's reason is not all that is there. What is in consciousness is in reality being influenced by something under pressure deeper down in the individual. This is spoken of as "unconscious," relative or absolute. Rationalization therefore is chiefly a compromise between what may be a real "unconscious" reason—*repressed*—and what may pass with the particular group that calls for explanation of the behavior in question. Consciousness therefore functions chiefly as an adaptive mechanism; especially when automatic wisdom is wanting.

The principle that a dynamic process of repression of unconscious urgings or drives is constantly operating in human behavior, in order to meet with real or fancied attitudes on the part of the physical or social surroundings is essential in psychoanalysis.

Psychoanalytic psychology, called by Freud metapsychology, assumes that all human behavior operates through mental systems which may be divided roughly into three parts, termed by him, the Id, the Ego and the Super Ego. In this scheme the Id is that part of man's mental systems which has accumulated experience with the world since life began on the globe and which is present in every part of the human body. It is a billion years old and is magnificently wise. For me it is what the old Homeric Greeks meant by "Soul." Here I can refer you to Dr. Cannon's important works on the "Wisdom of the Body," (1932), and his "Bodily Changes in Pain, Hunger, Fear and Rage," (II Ed. 1929). Much of this "wisdom of the body" is absolutely unconscious. Such are the automatic activities that go on in the internal organs, kidney, liver, blood, spleen, thyroid, etc., and of the inner behavior

* Psa. 116. 11.

patterns of which almost nothing is know in consciousness. This "Id" or "It," at least its oldest parts, can be said to occupy the depths of the human being. It is the core of his personality, and is that part of himself which he shares with all other forms of life, plant as well as animal. Some biologists would use the word "*instinct*" to give a short-hand term for such drives or urges that are universal to all living matter.

Out of this primitive mass of experience, and chiefly apparent in man, a specialized part, the "Ego" arose. The chief function of this part of the mental systems is to test reality. It is spoken of as chiefly conscious and has developed words or signs or symbols, of color, sound, etc. It also is an agent in suppression and in repression. By it is not meant the popular term Ego, the self, the Me, Mine, "Mego." This latter will here be spoken of as the Personality.

An automobile metaphor may be used to roughly illustrate these systems. In such a figure of speech the *Id* is the gasoline and the engine. The *Ego* roughly corresponds to the gas feed and the steering gear operated by a conscious driver. Man's engine, his *Id*, is always running, night and day, partly idling as to outside work but very busy in internal work. In the daytime the steering gear must always be in action; at night there is comparative rest for the Ego, but the mental systems still go on operating, as frequently glimpsed in the dream.

When psychoanalysts began to study individuals with certain kinds of mild or severe sick behavior, rationalized as nervous, and also when they began to try to understand hypnosis, and the dream process, another important bit of the functional mental machinery called for explicit description. Wise people had known of it for centuries. In religion it was called "conscience." In Freud's scheme this is the Super-Ego, or Ideal Ego. It operates between the conscious perceptive system, the "Ego," and the unconscious, the "Id" and is in dynamic relations with both. In the automobile metaphor already used one can picture it roughly though not as fixedly as the hand-brake and the foot-brake. It has been built up from precept and example, from the parents and the nursery and then from the family to society. Some of it is very old but of this phyletic wisdom, as seen in reflex action for example, there

is little time for discussion, although later it may turn out to be of great significance in what is called the retreat or "flight into illness."

Psychoanalytic psychiatry sets itself the problem of analyzing the respective activities in these three parts of the mental systems for explanations or understanding of any bit of social or bodily activity, *i. e.*, activity of the entire person on the environment or of the organ adaptations within the body.

The initial or primary organic or animal drives come through the *Id*. By some they are termed the primary instincts, often called self-preservation and race propagation, or what the poet Schiller called "Hunger" and "Love."

Common sense has learned and teaches that all of these factors in the mental systems have had to grow up. In infancy both the Ego and Super Ego are very weak and unorganized and the Id is all powerful. The child is a "little animal." It lives in a phantasy world with its primitive pleasures. It has tantrums, or sulks, or cries when not satisfied, or laughs and gurgles when pleased. It mostly sleeps. Through pain and pleasure the Ego system begins to learn about reality and then through precept and example builds up its adaptation to the world. All this is common sense. But stated in psychoanalytic terminology, the primitive titanic Id, neither good nor bad, but just the running engine, is guided (suppressed) by conscious experience, the Ego, and still further controlled (repressed) by the Ideal Ego as an accessory brake to that degree that behavior is made conformable to the mores, in each particular situation, *i. e.*, ideally becomes adaptive, successful and pleasure giving. In its highest form of social adjustment this adaptive process earns the term "*sublimation*." The forces of the Id then become socially creative and attain survival value, both individually, racially, and sociologically.

So much for the rough outline of the mental systems, the how and why, the *behavior patterns*, without any details of the "what," the parts, *i. e.*, the organs, *i. e.*, the *anatomical patterns*, of the body.

Millions and millions of parts are involved, but as already stated they have had a billion years to learn their lessons; otherwise man would not be here, the fittest of all animals thus far to survive. This "survival of the fittest" is chiefly due to the generally evolv-

ing type of one organ of the body, *i. e.*, the nervous system, and one particular part of it, the central switchboard, *i. e.*, the central nervous system where there are some several billion central stations with dial systems of which the American Telephone and Telegraph system is as simple a sample as the alphabet is to all the books in the world.

To speak about the parts would involve much of what the chemist, the biologist, and the anatomist have learned. Much of this knowledge is necessary for the psychiatrist in order that he should get at problems of non-adaptive conduct in bodily organ functioning. Common sense knows that the major *but not the only* drive in the human machine comes through the race propagation instinct. All other statements to the contrary are false. One may emphatically state that neither Freud nor any one understanding his principles ever has said that sex is the only instinct in life. In accordance with this drive however man comes into being. The human being came to its present preëminent place in answer to its imperious urge. The hunger or "domination" instinct is insignificant in its tension compared to it. It is a supreme bit of rationalization to say that self-preservation is the first law of nature. To satisfy stomach hunger alone is a comparatively easy task, and man does not live by bread alone.

When by the psychoanalytic method the unconscious layers in the *Id* are analyzed it finds the old-old patterns enormously complicated. The chemist has analyzed crude oil and finds it contains hundreds of thousands of different substances of which gasoline is only a mixture of a few. In much the same manner the sex instinct has been found on analysis to be composed of an enormous number of elements, which have evolved from amœba to man and are recapitulated in him in the developmental phases from infancy to manhood.

The briefest summary of these periods of involutionary recapitulation are the intrauterine *archaic*, the infantile *organ-erotic*, or auto-erotic, the adolescent self-love or *narcissistic* and the adult heterosexual stages, *social* which in their highest sublimation forms evolve on through mating, nest building to a vast variety of creative productive activities.

The psychoanalytic method has tended to show that the earliest infantile patterns can best be understood by referring them to a

certain content and form. To this the term "Œdipus Complex" has been applied, although pre-Œdipus phases are also there. In general the "Œdipus complex" means that since male must find female in properly adaptive cravings in order that life shall go on, the infantile models show that the mother-father images are the respective objects for the boy-girl children. This infantile model as such is usually subject to the work of repression and partial sublimation by 3-5 years of age. Those parts of it which

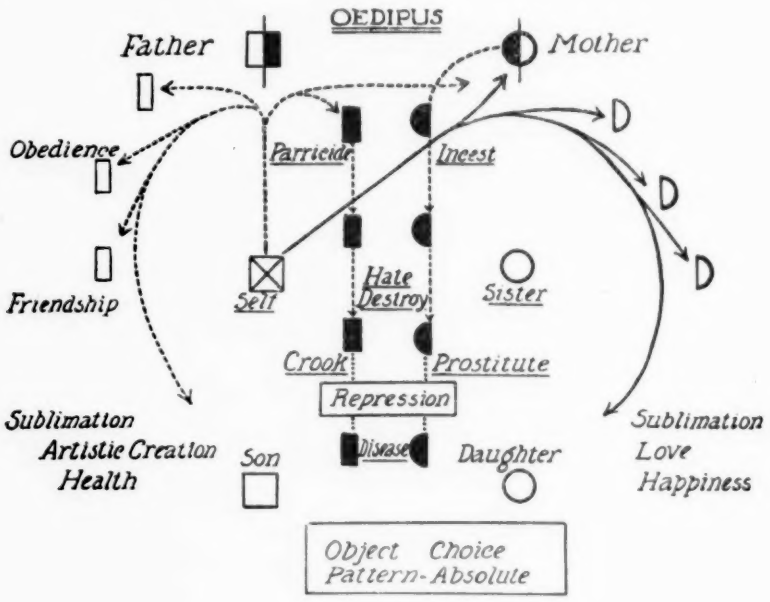


FIG. 1.

linger behind in development (fixations) show other patterns out of which the "sense of guilt" and the "need for punishment" (castration anxiety) develops. Fixations of infantile models (identifications) which require extra amounts of energy to repress by both the developing Ego and Super Ego bring about definite *character traits* in different individuals. This is but a brief thumbnail sketch of the innumerable possibilities that take place in human mental activities. Out of these character traits the various kinds of human behavior develop and become more or less fixed or habitual for good or evil.

A new auto which runs along without any trouble is conceived of as O. K. and neither driver nor riders are aware of it, but when something happens, then the hunt for trouble begins. It may be within the car, it may be from the outside.

The psychiatrist then is a trained trouble hunter who has developed certain methods of research to enable him to try to locate and to remedy certain human behavior difficulties due both to difficulties within and without the individual. He should be a trained engineer in human behavior problems and only through such a training is he competent to use the methods of psychiatry. Inasmuch as he must work with the human machine he should be one who knows such a machine, therefore primarily one with a biological and medical training. Since the most important part of the machine is that which organizes or integrates the entire machine, *i. e.*, the nervous system, he should be ideally a trained psychologist, neurologist and psychiatrist and finally since man is inseparable from his human environment, from opinions, ideals, customs, etc., the psychoanalytic psychiatrist must needs make special studies of social customs, religions, literature, and the arts. The public should know that any Atlantic City boardwalk advertiser or any newspaper advertiser or writer of popular catch pennies who calls himself a psychoanalyst is a quack.

The full details of the method cannot be entered into at this time. One should read Freud's own works, most of which are translated, rather than works about Freud's works, many if not most of which are extremely stupid and misleading.

Psychoanalysis utilizes such unconscious material as is available. Some of this material may be found in the creative activities of the individual, his poems, his compositions, his productions, his daily work. The *royal road to the unconscious,* however, is the dream life. Here free associations of dream material are most often employed in psychoanalysis. With the technical details of dream analysis we cannot stop at this time. They are highly complicated and only patient and analyst *together* in actual contact can analyse dreams. Dream analysis by mail is " fake." Other methods are illusory and much rubbish is written and talked about dream analysis.

Psychoanalysis is a specific methodology used to ascertain many fundamental difficulties, both of external behavior (conduct) and

internal behavior (bodily disease). As a therapeutic procedure it can remedy many of such difficulties. Only well-trained individuals, however, should be trusted to apply it and those licensed by the state to practise medicine. Psychotherapy is a most difcult and most important branch of medicine.

Let us turn now to certain conceptions of the machine, the human being, which is to be studied or influenced by the method.

The thought which orients the present discussion is that the entire organism carries out its reactions through patterns, or purposes, or drives, or if one will, more simply, wishes. Such patterns of action are mostly fairly fixed, in part the entelechies of Aristotle, but certain amounts of adaptive freedom of control enable certain organisms to operate more advantageously than others.

All living organisms from the lowest of plants (*Protococcus*) to the highest of animals (*Homo*) may be regarded as transformers of energy. In higher forms, as in man, for example, this energy is captured by means of receptors (the senses, some 20 or more of which are anatomically known, some of which are still of humoral or primitive undifferentiated structures). This energy is transformed through structuralized bits of experience (anatomical, chemical patterns), called the organs. These activities are all loosely coordinated at humoral levels and more highly integrated by the nervous system. The energy is finally delivered through two main channels. In general, one may be spoken of as Metabolism, functioning for the automatic upkeep of the human machine, the other, also in general, as Conduct or Behavior. The chief end and aim of this conduct or behavior is the *continuance of life*.

In lower forms of life, bacteria, certain protozoa, and in certain higher forms, as in many plants, the action pattern may be carried on by a nonsexual process. The bacteria and protozoa propagate chiefly by fission or non-sexual sporulation. Higher plants like potatoes repeat themselves by tubers, or others by rhizomes and other fission forms. This type of process prevents evolution and new forms. Hence for all higher forms sexual patterns have evolved. Everyday biological science says that these sexual patterns require male and female objects, and male and female parts through and by which the living form can be continued.

The transformed energy that pursues this creative goal, either within the body as seen in growth or repair, in mating, or in family formation, in works of art or in invention, has been called *libido* by Freud. Many superficial or illy informed writers use the word libido as if it meant genital activity, or eroticism or similar limited meaning. Thus genital activities, as with prostitutes, professional or other, are not the work of Eros (libido), but of the Death Instinct (Thanatos). They are destructive not constructive.

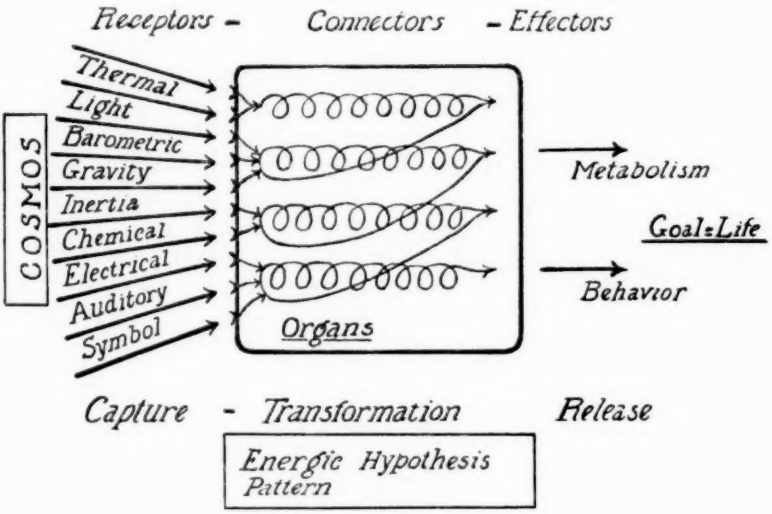


FIG. 2.

Psychoanalysis is only secondarily interested in epistemological problems of what is reality? As an empirical, experimental science it makes no claims as a philosophy or a Weltanschauung. It studies chiefly *unconscious* processes.

Expressed in a simple mathematical metaphor we can say that Conscious and Unconscious represent the numerator and denominator respectively of a fraction, in which the numerator is very small, from minute to minute, the denominator very large, a billion years. From this the proportion can be formulated. *As from minute to minute is to a billion years, so is our conscious knowl-*

edge of what we are doing to the unconscious forces that make it happen. It is because of this great disproportion of the two aspects of the mental apparatus that the doctrine of "Fate" was so widely held by the ancients.

From this proportional metaphorical statement then, from the psychoanalytic viewpoint, if one would know what relationship the mental bears to disease processes in general, such must be sought for in unconscious processes rather than in conscious rationalizations. There follows as a corollary the formula that says "*Any deviation from Object or Aim (in the Unconscious), is capable of causing disorder or disaster in the delivery of the energy of the human being either at the level of metabolism or at the level of conduct, or both.*

At the conduct level, such disorders or disasters are of social significance chiefly and are dealt with chiefly by legal agencies as antisocial, criminal or delinquent conduct, or by medicine as psychoses and certain psychoneuroses. At the metabolism level, organ disturbances result. These are of more personal significance and are termed organic disease, acute, subacute or chronic, as the case may be. Certain of these will be dealt with in our discussion at this time.

Accident must be eliminated at once. A large number of accidents are met with in medicine, but admitting this, it is equally important to state that in some sense much chronic disease is unconsciously wished for. It is the work of the Death Instinct. Some of the reasons for this belief which psychoanalysis has discovered, I shall hope to point out to you.

The science of medicine from time immemorial has spoken of diathesis or tendency. Hippocrates is full of this. In recent years pathological science speaks of it as Constitution. Certain kinds of persons, as judged by bodily form (Kretschmer, Pende, Draper, *et al.*), are thought to be more apt to have certain kinds of diseases. This has been hinted at for centuries. The sum total of accumulated transmitted factors, chiefly recorded in structural patterns are spoken of as the hereditary constitution of the individual. Psychoanalysis regards heredity in the light of accumulated experience. It accepts it as such and to be studied by other than its methodology. The Id contains all this heredity and/or constitutional capacities. Whether all of it is capable of being brought to

symbolic form in an open question. Freud regards Jung's ideas on this problem as yet purely speculative and as yet not capable of scientific proof. It may be sound intuition but is it inductive science?

The reactive capacities of the individual to the environment, internal as well as external, conscious as well as unconscious, in their entirety may be regarded as the "Personality." For more details one can consult the enormous literature so diligently collected by Roback in his Bibliography of Personality, 1929.

I would call your specific attention to what may be called the *psychological component* in organic disease processes. Other components you are aware of. (Nearly all disease may be better understood if the dynamics of the psychological component be perceived). In order to understand this psychological component it is of value to bear in mind the mechanisms of the mental apparatus as already sketched. You do not need to be told that "Life is a conflict." The survival of the fittest is a conception that needs no emphasis here. The individual is surrounded by forces with more or less fixed laws and more particularly by other individuals with their own personal goals. "Reality" is the term used in popular language as well as in psychoanalysis as a summary of these general situations. Every individual's nine months intrauterine life is a recapitulation of a billion years. This you know as the v. Baer-Haeckel law. Man is a time-binding animal. Or speaking in psychoanalytic terms, the Unconscious is timeless, the past and present and almost the future are there. All this phyletic experience is there in the developing embryo and a great deal is happening before birth, which is of great significance for the problems of internal medicine of which we would speak. This is recognized by psychoanalysis, but psychoanalysis as yet is skeptical as to the ability of its *method* to get at it. What is popularly known as *pre-natal influences* are not sniffed at, but it is not yet certain that such can be demonstrated inductively through the empirical experimental methods of psychoanalysis. Psychoanalysis is a rigidly objective experimental science. It is *empirical realism* if one wishes a term of this order. It cares less about counting however than valuing.

The individual begins at birth its struggle for oxygen, for food, for elimination of catabolic products. The forces of the "Id," are

all important. All takes place hedonistically or in pursuance of the *pleasure principle*.

All of this has been elaborated before, but it seems desirable to emphasize the mechanisms of *repression*, of *regression* and of *conversion* if one would understand the dynamic economics of the psychological component that may participate in the bringing about of irreversible tissue changes in an organ that are called organic disease of that organ.

Life's obstacles, conflicts, which range from innumerable petty annoyances to major catastropes, surround us at every moment. They must be adapted to. This adaptation takes place with ease or with difficulty depending upon the factors of Heredity and/or Constitution which are the more fixed features of our organization and the Personality or the more variable capacities which have developed from childhood.

The Id urges the pleasure of fulfillment of the creative pattern along individual lines. It is met however by the repressing forces of the ego (Reason) and of the Super Ego (Authority) and is forced to compromise at adaptive levels. If in the language of the energy transformations the libido surmounts the difficulties and the individual gains gratification at socialized levels, there is harmony of organic action and well being results. When only a part of the libido gratification is accomplished, and repression is, in a sense over successful, chiefly through a tyrannical Super Ego, sublimation becomes ineffectual, then the repressed portion of the libido pushes back to earlier stages of adaptation. The energy charge of the libido regresses.

What happens to the repressed libido and the repressing forces? In a crude sense it backfires, or stalls. Here is where internal medicine becomes interested. If the repressing forces are of sufficient dynamic potential to push back the libido to those stages in the individual's development when isolated organs were limited autocracies, as they were in infancy when each organ sought its own gratification, independent of the others, then the fat is in the fire.

As physicians, you do not need to be reminded how vigorously the infant will scream, as a single outlet, to signify innumerable discomforts. It is only later when by appropriate gesture or ver-

balization the specific source of displeasure may be indicated with the expectation of relief, *i. e.*, return to the equilibrium of pleasure.

In academic psychology, body and mind have occupied parallel pigeon holes for centuries. Down to the days of Socrates the Homeric Greeks rarely separated them. Plato spilled the beans when he "disembodied the soul," and to this day the theologians have capitalized the confusion and some have fattened on the fears of the superstitious. One of the most important of the conflicts between the Ego and Super Ego which operates as a large factor in the mechanism of the need for punishment thus gets its great push through the sense of guilt. The working through of the threat—"Vengeance is mine, saith the Lord"—into the bodily structures is the scarlet thread that runs through the story of the psychological component in organic disease.

The mechanisms of conversion, of substitution and of projection as means whereby repressed and regressive libido may be more adequately managed are all operative in internal medicine problems. Psychoanalysis has learned much of conversions, as seen in the non-malignant conversions, *i. e.*, reversible processes, of Conversion Hysteria, that imitate nearly all bodily disease. The so-called Compulsion Neuroses, which in general are more malignant maladaptations than the conversions, utilize *substitution* mechanisms more particularly. In many psychotic manifestations, the projection device is manifest. Here the libido is projected from the self to the outside world, in an effort to *save* the bodily organs.

Only a small beginning has been made in tracing the more malignant and persistent conversions back into the organerotic level which can be an element in the production of chronic disease of various organs. It is premature to say *how much* of the pathological disturbance in an organ's functioning can be attributed to the economic maladjustment of repressed and regressive libido operating at the organ level. It can be abundantly proven however that some of the energy is operating to aid the disturbance. Further research with the method will clarify our formulations. In many acute attacks of eczema, of arthritis, of exophthalmic goiter, of asthma, and many other situations, an antecedent "nervous" or "emotional" situation has been a conco-

mitant finding. Psychoanalysis has for its main object the more adequate analysis of those states so loosely and superficially called *nervous* or *emotional*. Psychoanalysis is not content with such omnibus words which mean everything and nothing. When such "nervous" or "emotional" situations are resolved into their component elements by the psychoanalytic method the dynamics of the various libido mechanisms become as clear as the respective mechanisms in an automobile with its exploding gas (Id), its transmission (connectors), and its steering gear (Ego), brakes (Super Ego), (all crude analogies), etc.

Here, as elsewhere in other sciences, the theoretical interpretative formulations are ahead of the ability to apply the principles concretely in all cases. By analogy much is known of earthquakes in geophysics, but no one yet through such knowledge has shooed off an earthquake. Physical-chemistry tells of the enormous quantities of energy locked up in a shovelful of sand, but as yet no one has been able to boil an egg with a pebble in spite of the large quantities of heat known to be locked up in the same pebble. Thus if one is to apply to clinical problems of internal medicine the principles, here outlined, while not so far off from application as are the hopes of controlling earthquakes, nor cooking with pebbles, they are nearer to specific applicability. The amount of time required for educating, reeducating and remaking the Personality is so great as to seriously hamper the worker. For the present only a beginning, although an important one, has been made. Patients, in their unconscious, resist the wish to be cured if they must relinquish some of their infantile pleasure patterns.

The understanding of psychoneuroses is paving the way for an interpretation of the dynamic principles involved in organic distortions which very frequently begin silently or subtly as neurotic disturbances. This has been known for centuries. While in the neurotic stage of maladjustment (organ neuroses) the somatic processes are still reversible, hysterical conversions for instance, which behind a great multiplicity of forms involve the skin, mucous membrane, stomach (so-called dyspepsias), bladder, bowel (constipations), etc. After a certain number of years of such faulty adaptations (classicially at about 40) the processes become irreversible. The leaning tower of Pisa has leaned too far and then

organic disease has begun. It may be too late. *Behavior pattern has eaten its way into anatomical pattern and will not be recalled.**

Even a brief sketch of some of these innumerable situations could occupy many hours instead of the limited time at my disposal. Perhaps it will be profitable to touch on certain so-called chronic disorders. Chronic is largely another word for not-understood.

Since the skin has been bathed in its ancestral sea-water like fluid the billion time-bound years spent in the womb, dermatology offers an opening wedge. Here eczema and psoriasis stand out as two intriguing situations, still pointing a finger of scorn at current dermatological understanding. That in the beginnings one should be preeminently wet and on flexor surfaces, the other dry and chiefly on extensor surfaces, has meant little to present day dermatology; not even to allergic dermatology which entirely overlooks the vast series of problems involved in chemical cellular memories. Psychoanalysis, utilizing symbols as tools for thinking, queries in terms of flexor surface the caressing tendencies of the skin and in extensor surfaces the rebuffing or hostile activities. On the flexor side, there is taking, grasping, possessing. On the extensor side, refusing, rejecting, hitting, hurting. In these two disorders, the skin libido of such afflicted individuals activates ambivalent (bi-polar) efforts at gratifications, either through autopunition (masochistic) or hostility (sadistic) repressed, regressive satisfactions at narcissistic and organ erotic levels. The repulsive acnes of many young adolescents are found to be the expression of their sado-masochistic organization. They punish their faces to scourge their souls, or they display their hostility to a kind but falsely interpreted (as hostile) world.

A very early patient with a universal psoriasis comes to my mind. Efforts at sublimation of repressed criminal tendencies through the study of law, then the practise of criminal law for relief, then additions of economic social aid for related social distorted patterns all were of little avail. Twenty-five years ago I recall I asked him, as a mashochistic dream-expressed drive became

* Special attention may be directed here to a highly valuable and thorough bibliographic survey of the literature devoted to psychosomatic interrelationships by Dr. H. Flanders Dunbar. Emotions and Bodily Changes. Columbia Univ. Press, 1935.

certain, "Why do you wish to get in jail?" (The psoriasis was the equivalent of his intra-uterine jail). He finally achieved this unconscious wish. It is a long story.

Were I to stop and but briefly indicate to you what psychoanalytic psychiatry even now has to say about smell and its memories, its identifications with the body odors of self and childhood—surrounding objects and the resulting libidinal fixations, their repressions, and later regressive possibilities, I could a tale unfold about the common cold, sinus disease, epileptic seizures, and hosts of compulsive erotic reactions, which might well rival the weirdest tales patterned after the memorable classic of Livingston's "In Darkest Africa." Also were I to try to show the as yet imperfectly oriented anatomical patterns from olfactory receptors to the corpora mamillaria, tuber cinerea and the hypothalamic nuclei, I might get into psychoendocrine behavior-pattern correlations which could occupy many hours of interesting fact and profitable speculation.

For the lungs tuberculosis stands out as a striking unsolved problem. The tubercle bacillus is only a part, even if a necessary one in the story of tuberculosis. We all harbor the bacillus. Only a few die of it. The soil that *permits* the growth of the tubercle bacillus is as of much, if not of more importance. Here psychoanalytic psychiatry has something, as yet but feebly, to say. It finds that in many instances the flight into a tuberculous disease is a way to satisfy the death instinct, either at very infantile levels, back to mother, or at more adult levels. In a manner of speaking, "You'll be sorry when I am gone," says the unconscious, unwittingly of course. Sometimes it is revealed as a form of "revenge" because of infantile interpretations of fancied favors to sister or brother or to other specially loved or favored ones. There are innumerable gradations of the "position complex" of the Freudian formulation, that the tuberculous reveal. Man does not live to breathe alone. He must use his respiratory apparatus for more sublimated activities. It is not surprising therefore that the universally distributed tubercle bacillus should find an easy home in an organ which is failing to come up to its complete adult socialized capacity as in instrument of social as well as respiratory value. Psychoanalytic psychiatry can claim but a beginning in the study of the unconscious of the conflicts in the personality of those who

conquer the tubercle bacillus or of those whose flight into an illness causes the work of the death instinct to prevail.

Immediately after the establishment of breathing at birth, the child begins to suck. Now from the mouth to the anus the digestive tract begins to function physiologically as well as psychologically. Conflicts between pleasure attaining and pain avoiding begin. In a sense as a child sucks at his mother's breast so will he treat the world as an object of attainment in life. It is no great wonder that the stomach should reflect conflict throughout life. It is the organ par excellence of retreat in the face of frustration. Early tendencies of the nursing infant will foreshadow many things that are to come in stomach and intestinal diseases. Constipation, diarrheas, dyspepsia, gastric, duodenal ulcers, appendicitis, diverticulitis, ileus, gallstones, maybe even carcinoma, are conditioned by personality conflicts displaced to the guts. These "diseases" are not necessarily due to the faulty distribution of libido, entirely or in part, *i. e.*, preëminently psychological, but your everyday horse-sense teaches you that many of these difficulties cannot be completely understood and, therefore, intelligently treated, without a proper evaluation of *what part* and *how much* unconscious conflict is operating. To assume that a peptic or duodenal ulcer patient should be psychoanalyzed instead of being operated upon, especially after 40, is hooey. The gastroenterologist however *must* get an insight into psychological factors in order to be a good gastroenterologist. I deem it absolutely essential to emphasize that so far as the carcinoma problem is concerned the facts are still too deeply buried to permit even speculative suggestions. It should be said however that ignoring the psychoanalytic method as a part of the program of research for the ultimate understanding of carcinomatous and other malignant growths is stupid.

Chronic medicine has written a large chapter on disorders of the muscles, tendons and joints, variously called arthritis. Of late these have been more or less separated into two generally defined tendencies in which (1) joints show proliferative reactions to infections, or (2) degenerative reactions to unknown factors. The former occur in younger individuals chiefly and are now more or less officially called "rheumatoid arthritis." The latter occur in older persons and receive the portmanteau term "osteoarthritis."

For the infectious types, psychoanalysis asks here the same kind of question that it asks for tuberculosis. What of the soil, the personality, that permits, shall one say only 2 per cent or less of the population to have such joint infections even though everybody's tonsils, teeth, sinuses, intestines, etc., harbor the general and specific varieties of infectious organisms so diligently searched for by the bacteriologist, and rightly so.

Psychoanalysis has thus far only a slight look in on the unconscious pulling, hauling, muscular tensions of greed and grasping, the aggressive, hostile striking, kicking, beating tensions which are of significance in the degenerative osteoarthritides. These deep psychological conflicts are capable of involving the metabolism of the joints. They help to bring about the changes that lock up the joints in fruitless arthritic bondage when run over years of faulty adjustment. Those unsuppressed hostile aggressive impulses which in the anti-social individual forces society to lock him up in jail or hospital, in the repressed but unsublimated individual turn upon himself and through *self* punishment bring about a different kind of jail—the wheel chair. It is little wonder that the ancient theologians should have said, "Judgment is mine, I shall repay, saith the Lord."

The analysed cases of various osteoarthritics are but meagre in psychoanalytic literature as yet. There is good reason to believe that working with massage, hydrotherapy, physiotherapy, much can be done by enlightened psychotherapy with such cases.

An interesting picture comes to mind in the person of a man of 50 whom I saw but on a few occasions professionally but have known 40 more years. He was all tied up with a widespread osteoarthritis. The x-ray pictures were typical.

If one were gathering statistics to show heredity it might be said that his mother had arthritic joints after 60. An older sister began to develop a widespread osteoarthritis after 50 and at 70 was badly crippled.

He was the youngest child in a family of five, of which three grew to maturity. He had an intense rivalry with an older brother. There was some evidence of the older brother's early aggression. At his birth the older brother was looked after by the 10 year old sister, this left the mother to him.

He was more gifted in many ways than the older brother but was impatient whereas the brother was more plodding. The father was a professional man. The older son studied for a profession but the younger wanted to get ahead; took a commercial course, went into business and married early.

"He got ahead of his brother" he once told the wife of the brother. He was successful but prodigal. There were children, divorce, remarriage and widowered he lived with two daughters, one of whom had married and had one child.

This daughter was trying to get a divorce from her husband and this mix-up played a large part in the development of the osteoarthritis from the present point of view.

There was a strong father-daughter fixation and my patient, for some two or three years before I saw him, was all tied up in the emotional and economic conflict between these hostile elements. He hated the son-in-law with a virulence just this side of murder. As he described the long drawn out legal contests, prolonged beyond any possible understanding, his knotted fingers would curl into tearing tools of torture of what he would like to do to the whole situation, lawyers, judges, son-in-law, his backers, etc. "To rip out their guts" would be the mildest form of action that he would like to perform.

He was constantly thwarted, beaten, and pressed and it was in the midst of the situation that I saw him. He was not lacking in insight into psychological possibilities and after but a few talks began to mend his ways. He perceived that his violent rages got him nowhere except nearer to making himself a cripple and some few months later he showed very marked improvement although he was far from well. Economically he was in difficulties as he had spent a small fortune trying to aid the daughter in her fight and were it not for a sublime faith in his future possibilities, borne of almost delusional self confidence, he would probably be a crippled dependent. He had encouraged an ever optimistic personality to heights of ultimate success and thus the grasping at future possibilities took the place of his sadistic, hostile muscle-joint aims with a marked improvement in their functional activity.

Here unconscious material was not available as he lived in a midwestern city, could not afford to be investigated, nor could I promise him anything more than an interesting if not profitable journey into the functioning of the unconscious. But even with the little I could say to him I was gratified to learn that it apparently had borne much more fruit than the teeth pulling, uterine cutting and other operations that had been carried out extensively in the case of his mother and sister, neither of whom had been helped the slightest bit of these radical procedures. I have the records extending now through 40 years.

This is one of but many whose x-rays and histories I could show.

Many disorders of the heart are known to be of "nervous" origin. Such is the popular, and correct tradition. "Nervous," like "emotion" are omnibus words. "Nervous" to psychoanalysis means many things in which the mental apparatus is involved. They are interpretable in accordance with the Oedipus complex pattern. Conversions, substitutions, projections and other mecha-

nisms are operating here also. For many obstinate heart conditions psychoanalysis has proven of great service. This does not mean that rest, diet, quinidine, digitalis, strophanthine, etc., should be thrown out of the window. I should be a fool to stand here and even suggest such a thing. But even with these remedies as useful regulators of cardiac function, psychotherapy is still available even in severe cardiac lesions.

Psychoanalytic investigation and therapy finds a highly important field in the study of cardiovascular hypertension states. Here marked episodic or permanent variations in blood pressure, which often bring about arteriosclerosis, may be influenced. In many instances such vascular states are of psychological genesis which may be a primary factor which leads to cerebral hemorrhage. Straining in rage is much worse than straining at stool. Sydenham has told us of gout connected with rage and another celebrated physician of near antiquity has said that his life was in the hands of the first rogue that enraged him, through "angina," in fact he died in such a rage attack.

The "passions," using this word in its old sense of hatred, rage, jealousy, envy and related emotional activities has been empirically known for centuries to produce bodily disturbance. The ancient injection, "Let not the sun go down upon thy wrath," is but one of the ancient wisecracks about this situation.

The only method at present known to me that is capable of measuring with any degree of satisfaction the component parts of these "passions" and of showing just how these faultily guided affective states can produce vascular and bodily disease, especially through blood pressure alterations, etc., is through psychoanalysis. Beneath the "silken glove" of "nice people" are often hidden violent sadistic impulses. The façade of urbanity, may be but a disguise for intensely strong investments (cathexis) of hostile impulses. Many reformers and prohibitors are filled with such "consciously righteous" but "unconsciously murderous" impulses.

Just as any man in a regiment can get out of step, so any organ of the body is able to get out of harmony with the body as a whole. The control of the endocrine glands by the mental apparatus offers many practical problems for psychopathology. Many of these endocrine organs are very intimately related to and function as

primitive nervous tissues. It is a highly significant fact that when one considers the body as a machine that operates through chemical energies, that certain endocrine organs show predilections for specific chemical substances. Iodine, potassium, sodium, phosphorus, sulphur, calcium each have their special reservoirs in such bits of structuralized experience. The many interrelations make them objects of special interest.

The endocrine organ disturbance at present best known in internal medicine to be related to psychological situations is that of the thyroid. In response to mental situations, sometimes of a very subtle and hidden nature, an increased activity with accompanying problems of much complexity and significance is brought about. Mild or even dangerous hyperthyroid states are widely recognized as accompaniments of or as directly caused by conflicts between the Ego and the Id. The Romans knew of some interrelationship between the thyroid and the uterus, you may recall they noted the swelling of the thyroid of young girls at the menstrual period and literary allusions to its measurements by blades of grass are recorded, but only in recent years has this been shown to be a close anatomical one. Psychoanalytic investigation has frequently shown some very definite conflict mechanisms which utilize the thyroid as a compensating organ activity. When this fails the thyroid activity goes on to such extremes as to jeopardize the life of the individual. Jelliffe and Lewis originally showed some very clear cases of such relationships. Many hyperthyroid states developed during the War, partly because of psychological components, partly because of altered adaptive capacity in other organs, from fatigue, etc. (adrenals, pituitary). A host of thyroid disturbances remain to be carefully investigated by the psychoanalytic method. Acute hyperthyroid states with high basal metabolic rates, it must be emphasized may need immediate surgical intervention to save life.

" The medicine of the future," will occupy itself more and more with more accurate evaluations of the effects upon the human body of aggressive hostile impulses and with methods of bringing them to consciousness and thereby saving mankind from many crippling and devastating chronic diseases. Psychoanalytic psychiatry is aware that popular belief, and theological formulations have been actively proclaiming such inherent interrelationships ever since

human records have been made, whether in the form of myths, religious beliefs, rituals and observances, the epigrams of Rochefaucauld, or the wisecracks of the mummers, and vaudevillians to Will Rogers, but psychoanalysis is the first scientific entering wedge into bringing the dynamics of such human and social factors into the clear light of conscious evaluation in terms compatible with those of the physical sciences.

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PSYCHIC TRAUMA IN THE ETIOLOGY OF GRAVES' DISEASE.

A Survey of 5000 Case Histories.

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Sooner or later the clinician who is brought in contact with many sufferers from exophthalmic goiter is forced to the realization that the psychic factor permeates every phase of the disease. It is significant in the heritage of the individual; it is observed in the personality and behavior pattern. Almost invariably it exists as the apparent exciting factor in the form of psychic traumata commonly preceding the occurrence of the outspoken syndrome. Finally, the psychic factor is a vital consideration in therapy.

The Apparent Predisposing Factor—The "Graves' Constitution."

In 1923, under the caption "The Prevention of Exophthalmic Goiter" I called attention to the observation that subjects of Graves' disease have had a pre-Graves' disease status and the "earmarks of susceptibility" that differentiate them from humanity at large.[1] Shortly thereafter Warthin,[2] Simpson,[3] Moschcowitz,[4] and Lorand and Moschcowitz [5] published noteworthy contributions on the pre-Graves' disease status which they termed the "Graves' constitution."

In the above mentioned contribution I called attention to the common observation that (a) hereditary influences play an important part in susceptibility, as evidenced by the frequency of multiplicity of cases in the same family; (b) that this hereditary predisposition may become intensified by acquired factors through errors in the conduct of life or through maladaptation to environments; and (c) that in the vast majority of cases of Graves' disease there was superimposed upon predisposition an exciting factor which appeared to instigate the onset of the syndrome.

The history of subjects of Graves' disease reveals that they were nervous and delicate during infancy and that childhood was

characterized by nervousness and emotionalism. Alertness of mind at the expense of physical vitality is frequently described by parents as characterizing school life, though most often these youngsters present a floridity of the skin, indicating apparent good health.

Earmarks of Susceptibility to Graves' Disease.

It appears that the earmarks characterizing a young adult possessed of susceptibility to Graves' disease (the Graves' constitution) are (a) heightened cerebration, (b) autonomic and emotional instability, (c) excitable heart, (d) vasomotor ataxia, (e) brilliant, sparkling eyes and (f) an unduly palpable thyroid gland. A lowered threshold of emotional reaction is particularly characteristic.

Those susceptible to exophthalmic goiter are an interesting type, giving to the world many artists, writers, musicians, painters, educators and leaders of men. Herr Stressemann, great leader of post-war Germany, was already afflicted with the malady when in the height of his career, but too busy with affairs of state to undergo proper treatment, died in harness. The average candidate for exophthalmic goiter is an idealist, relatively incapable of fighting his way through the vicissitudes of life without scars.

Psychic Traumata.

Susceptibility alone is usually an unconscious quality, largely objective, typifying but not incapacitating the individual. It appears that in the absence of an exciting cause, predisposition may not tangibly mar the individual's efficiency and well-being throughout a normal span of existence. Doubtless there are thousands of persons susceptible to exophthalmic goiter who are going through life in an apparently normal manner, oblivious to possibilities which would likely follow the occurrence of an exciting cause.

The term psychic trauma, based on the fear instinct, is applicable to situations in which, with or without physical injury, the mind has received an impact or shock from which it does not readily recover its former poise. The shock may result from a cause acutely, subacutely or chronically operative.

Just as some persons present undue sensitivity to drugs, foods, pollens and temperature, so do those predisposed to Graves' disease

present specific reactions of one or another degree to psychic and environmental irritants. They appear incapable of satisfactory adjustment to adversity which sooner of later may befall every human being. In a situation in which the instinct of self-preservation is called upon to decide between fight and flight, the sensitive individual is singled out of the crowd to become the subject of exophthalmic goiter. On the firing line in battle, during a conflagration, an earthquake, a shipwreck or a train accident, 49 out of 50 persons may emerge from the harrowing experience quickly to recoil to usual physical and mental health. One of them, however, quickly or gradually develops symptoms merging into the typical picture of "frozen fright" characterizing exophthalmic goiter. The eyes stare, the heart palpitates, there is subjective and objective trembling, the skin remains moist, insomnia becomes complete, emotionalism dominates mental existence, there is rapid loss of weight and the basal metabolism rises. This form of psychic trauma (imminent danger to life and limb) is but one type of emotional insult elicited in the history of these patients.

Varieties of Psychic Trauma.

Varieties or shades of psychic trauma are as numerous as the colors of the rainbow. One person may be immune to one type, yet quite susceptible to another form of psychic insult. While a large number of patients attribute their plight to an automobile or other vehicular accident, others may experience two or more such mishaps with impunity, but rather develop exophthalmic goiter during or shortly after a period of intense worry due to business failure. Again, despite the fact that quite a few other incidents classifiable as psychic traumata had been experienced without tangible harm, a percentage of these persons trace the development of symptoms from the time of the acute emotionalism resulting from a disappointment in love, a chronically criticizing in-law, a badly spoiled child, perhaps a bit of "neighborly" vicious gossip, the death of a newborn infant, intense apprehension over school examinations or over a business venture. Singly or in combination, these and other conceivable emotion-provoking events appear to serve as the torch instigating the syndrome in susceptible persons. We may meet an individual who is apparently calm, composed and

collected, capable of meeting ordinary emotion-arousing situations with commendable equanimity, yet whose psyche is almost irreparably assailed by the sudden death of a loved one or the loss of worldly goods. Perhaps some day psychologists will find a way to measure individual emotional susceptibilities in much the same way as we now perform tests for allergy or for thyroid activity. This would probably assist in the solution of the problem of the prevention of exophthalmic goiter.

Multiple Psychic Traumata.

While in many cases the first psychic trauma is regarded by the patient as the origin of symptoms of exophthalmic goiter, in others, two or more such provocative experiences are held responsible in the history. Occasionally three psychic traumata may be experienced with apparent impunity, yet a fourth or fifth of another character appears to break down the remaining resistance to Graves' syndrome, constituting the "straw which broke the camel's back." For instance, a young married woman went through her first difficult childbirth fairly successfully. Another pregnancy, several months later, imperiled her life and terminated in a so-called "nervous breakdown" necessitating a stay at a rest-cure sanatorium. When shortly after delivery she became pregnant again, the intense apprehension resulted in a frankly outspoken attack of exophthalmic goiter. Again, a young man having after much difficulty settled himself in a promising business, later found it slipping from him, and in course of time became bankrupt and was obliged to secure a position of an inferior nature to keep body and soul together. This blow he faced bravely and with fortitude. But the loss of a parent shortly afterward led to persistent nervousness for which he finally sought medical aid. The doctor relieved him of the major part of his complaints, then suggested the removal of his infected tonsils as a safeguard against relapse of symptoms. Within two weeks after this operation the patient began to feel unusually nervous and again consulted his physician, who now made a diagnosis of exophthalmic goiter. Apparently the psychic trauma incident to tonsillectomy was the "last straw."

In the order of their importance, we might conveniently classify and exemplify the varieties of psychic traumata preceding Graves' diseases as follows:

I. ACCIDENTS, NARROW ESCAPES, ETC.

Shock and terror incident to accidents and narrow escapes, and harrowing situations with imminent danger to self and others apparently served as the exciting cause in 35 per cent of exophthalmic goiter cases in our series of 5000 case histories. The following are typical examples:

CASE 1.—Mr. N. E., 22, was struck by a trolley car. Though not seriously injured physically, he developed extreme emotional symptoms. A month later the diagnosis of exophthalmic goiter was made.

CASE 2.—Mrs. E. M., 35, fell under a wagon and injured her fingers. Six months later she underwent a tonsillectomy which made her extremely nervous, and when she consulted her physician several weeks thereafter she was told that she was suffering with exophthalmic goiter.

CASE 3.—Mrs. S. T., 52, dates her attack of exophthalmic goiter to two years ago, following a fall down a flight of stairs. Lack of harmony in her home was given as a supplementary cause.

CASE 4.—Mrs. E. D., 52, dates her symptoms of exophthalmic goiter from the time of an automobile accident a year ago.

CASE 5.—Mr. C. S., 38, developed severe Graves' disease shortly after two serious automobile accidents which occurred a few months apart.

CASE 6.—Mr. E. Mc., 32, developed a very severe form of exophthalmic goiter immediately after the following incident: while a government inspector in a munitions factory during the world war, he saw a freight train jump the track into a warehouse full of shells; a terrific explosion followed, and though he was unhurt, the picture of frozen terror of exophthalmic goiter was evident when he was picked up after a period of unconsciousness.

CASE 7.—Mrs. I. S., 40, dates her malady from the time her child fell out of a second story window; this accident resulted in the development in her child of epilepsy.

CASE 8.—Mrs. A. S., 28, dates her malady to shortly after the time when a horse ran at her child on the pavement; although the youngster was unhurt, the mother became hysterical and soon developed typical Graves' disease.

CASE 9.—Miss R. B., 25, developed the syndrome shortly after the following incidents: on looking out of the window of her home she saw the gasoline tank of a car (with a man in it) on fire; the next day she saw her sister's baby drink something she believed to be poison; the following week she fell down a flight of stairs.

CASE 10.—Mrs. R. B., 27, was told that her child had infantile paralysis, and despite the fact that this diagnosis was later found to be erroneous, Graves' syndrome had begun and continued its course.

CASE 11.—Mrs. E. R., 30, presented a severe form of Graves' disease of 5 years' duration following this incident: she called to see a friend who was an inmate of a mental hospital, and while there this friend had an epileptic seizure. Badly frightened, she tried to make her exit when she was attacked by another inmate who blocked her way out.

CASE 12.—Mr. J. O., 32, drove his automobile in front of a train and jumped for his life.

CASE 13.—A man of 26 was very badly frightened 6 years ago when informed that he was suffering from tuberculosis. He had been nervous since. Four years ago he was struck by a trolley car. This accentuated his nervous manifestations. Two years ago he participated in an automobile accident, and a few weeks thereafter his physician stated that he was suffering with exophthalmic goiter. When the patient was referred to us he not only presented a chronic form of Graves' disease, but also a complicating manic depressive psychosis with suicidal tendencies.

CASE 14.—A housewife of 52 developed very severe Graves' disease 4 years before, following a fright as the result of a practical April fool's joke.

CASE 15.—A housewife of 20 developed the disease almost immediately after the severe fright of seeing her baby fall off her bed.

CASE 16.—A man of 42 developed the syndrome 20 years ago when he was badly frightened by a dream in which he saw a man with an axe standing over his mother's bed. Incidentally, the unusual chronicity of the syndrome was occasioned by periods of partial remission through radiation of the thyroid years before.

CASE 17.—A woman of 26 was terrified by a fire next door. The following day she was badly frightened by prohibition officers who raided her home by mistake.

CASE 18.—A man of 32 was struck in the face by a golf ball.

CASE 19.—A girl of 23 had a narrow escape from drowning.

CASE 20.—A physician of 31 struck his head forcibly against an iron beam.

CASE 21.—A housewife of 38 was badly frightened by a negro breaking into her house one night.

CASE 22.—A woman of 24 developed the syndrome shortly after being badly frightened by a man who followed her at night as she was walking across an empty lot.

CASE 23.—A woman of 30 was awakened from a deep sleep to be informed that her next door neighbor had died.

CASE 24.—A housewife of 38 was a passenger on a railroad train passing through the Hudson Tunnel bound for New York. The train was suddenly derailed and she felt sure that the passengers would "drown like rats," as she put it. When she was finally rescued and taken to a hospital it was revealed that though she was physically unhurt, she was suffering with evidences of acute exophthalmic goiter.

2. SHOCK FOLLOWING DEATH OF A LOVED ONE.

Shock and grief over the loss of one or more loved ones preceded the onset of Graves' disease in approximately 32 per cent of cases of our series. To exemplify:

CASE 25.—Mrs. E. K., 48, was intensely grieved over the death of her two children.

CASE 26.—Mr. S. G., 30, was shocked by two deaths in his family within two weeks.

CASE 27.—Mrs. H. S., 47, received news of the sudden death of her mother and sister in Europe.

CASE 28.—Mrs. A. B., 43, saw her sister's baby burn to death.

CASE 29.—Mrs. S. S., 45, was shocked by the death of both parents and the fatal accident of a brother-in-law, all of which occurred within a year.

CASE 30.—Mrs. M. G., 58, could not recoil from intense grief over the death of her husband.

CASE 31.—Mrs. H. H., 37, grieved intensely over the death of her twin brother from influenza.

CASE 32.—Mrs. I. K., 39, developed a severe form of Graves' disease shortly after the loss of two brothers within several months; the first, a twin brother, died after thyroidectomy for exophthalmic goiter; the second was found murdered.

CASE 33.—Miss R. K., 26, became ill shortly after the suicide of an uncle to whom she was very much attached.

CASE 34.—Mr. A. M., 43, developed typical Graves' disease shortly after the sudden death of his wife.

CASE 35.—Mrs. H. L., 47, developed the disease shortly after the death of her husband during an operation.

CASE 36.—Mrs. M. A., 26, grieved deeply over the death of her mother shortly before her marriage. Five months later she lost her father.

3. GRAVES' DISEASE FOLLOWING MULTIPLE PSYCHIC TRAUMATA.

Repeated psychic traumata are often given the medical historian as factors responsible for an attack of Graves' disease. We have already mentioned a few such histories above. Which incident is apparently the most provocative is often difficult to establish, but it may be that the totality of effects constituted the exciting cause in most such cases. Following the second or the third shock, the remaining resistance is apparently lowered to the breaking point. The following are examples:

CASE 37.—Mr. M. S., 45, traced his malady to a motor cycle accident some years before, and to severe business reverses and a narrow escape in an automobile accident more recently.

CASE 38.—Mrs. V. M., 45, developed severe exophthalmic goiter after three psychic traumata, namely, being endangered by a gasoline explosion, followed within several months by the suicide of her husband, and shortly thereafter by an automobile accident.

CASE 39.—Mrs. S. C., 25, developed moderate Graves' disease after the following incidents: an automobile accident; another a few months later in which her right breast was injured, and the death of her father.

CASE 40.—Mr. A. S., 29, developed Graves' disease after the following series of happenings: intense business worries, an aeroplane trip (during which he was badly frightened) and an attack of influenza, all of which occurred within a year.

CASE 41.—Miss P. P., 26, presented exophthalmic goiter of a few years' duration, beginning shortly after being badly frightened by a dog, and the ordeal of tonsillectomy, both incidents occurring within a period of two months.

CASE 42.—Mr. H. H., 37, developed Graves' syndrome shortly after the ordeal of being obliged to carry a corpse down stairs; a few days later his brother died of influenza.

4. WORRY OVER REAL OR IMAGINARY ILLNESS.

Worry over real or imaginary illness of self or loved ones is another form of psychic trauma stated by patients to be the starting point of Graves' syndrome. To exemplify:

CASE 43.—Mrs. G. B., 47, dated her syndrome from the time of a serious automobile accident due to which her husband was at death's door for a long time.

CASE 44.—Mrs. L. P., 60, developed a severe form of the disease shortly after an emergency appendectomy undergone by her husband.

CASE 45.—Mrs. A. C., 52, dveloped the disease when it was revealed that her mother was suffering from cancer; she brooded over the possibility that she, too, might be suffering from cancer.

CASE 46.—Mrs. C. B., 56, developed incipient Graves' disease shortly after discovering what she thought were evidences of tuberculosis in her only child. Disillusionment by medical experts did not alter the course of the mother's syndrome.

CASE 47.—Mrs. G. G., 39, presented typical exophthalmic goiter of 5 years' duration, beginning shortly after the discovery that her child was an epileptic.

CASE 48.—Mrs. P. F., 26, developed the syndrome 5 years ago when her child contracted infantile paralysis.

CASE 49.—Mrs. B. B., 30, developed the disease 9 years ago when her husband became very ill. He recovered, then relapsed within a few months.

CASE 50.—Mr. C. F., 39, developed the malady while intensely worried over his wife's serious illness and operation 4 years before.

CASE 51.—Miss C. R., 21, was intensely worried over her father's illness which necessitated her leaving college.

CASE 52.—Mrs. B. F., 36, gave birth to a baby with club feet; her intense worry was followed by Graves' symptoms within 2 months after delivery.

CASE 53.—Mrs. C. B., 24, was intensely shocked over the accidental, though not serious, poisoning of her child.

CASE 54.—Mr. C. C., 28, developed Graves' disease after being badly frightened when told that he had cancer of the lip; the diagnosis later revealed a benign lesion, but the Graves' syndrome became progressively worse.

5. PSYCHOSEXUAL MALADJUSTMENTS.

Due to the fact that consciously or unconsciously the woman's life is largely dominated by her sexual existence, psychosexual maladjustments * in the female appear to play a greater rôle in the pathogenesis of Graves' disease than in the male. The following are examples:

CASE 55.—Mr. A. B., 54, traced his malady to the time of his serious marital disagreements and divorce.

CASE 56.—Mrs. R. B., 36, developed the syndromes shortly after a series of violent quarrels with her husband.

CASE 57.—Mrs. R. F., 51, developed the syndrome 10 years ago, after a prolonged period of misunderstanding with her husband.

CASE 58.—Miss M. M., 21, had an intense disappointment in a love affair.

CASE 59.—Miss E. S., 19, developed the disease after a violent quarrel with her parents over her fiancé.

CASE 60.—Miss S. M., 18, had an unfortunate love affair.

CASE 61.—Mrs. C. J., 22, experienced a few embarrassing escapades when out with other men.

CASE 62.—Mrs. C. W., 50, developed a serious form of Graves' disease after her discovery that her husband was having a love affair with a nurse she had engaged several months before to look after her daughter.

CASE 63.—Miss M. M., 24, dated her Graves' symptoms from the time of breaking off her engagement 2 years before.

CASE 64.—Mrs. F. A., 40, a widow, presented a similar history.

CASE 65.—Mrs. F., 31, became ill with Graves' symptoms after a series of quarrels with her mother-in-law.

CASE 66.—Mrs. A. D., 28, dated her symptoms from the time of her marriage 5 years before, admitting the existence of sexual incompatibility.

6. PSYCHIC TRAUMA INCIDENT TO OPERATIONS.

Another form of acute psychic trauma may be described as incident to surgical operations, usually minor, such as tonsillectomy, nasal operations, uterine curettage and the like. Such histories preceding the onset of Graves' disease constitute approximately 7 per cent of our series. A patient may assume an air of bravado immediately before tonsil removal or tooth extraction, and yet become badly frightened during the operation. This is no argu-

* Marital entanglements and maladjustments, sexual incompatibility, disappointments in love and other conceivable situations relating to the sexual and human relations of the near-marital and marital status are often difficult to elicit and to unravel.

ment against removal of infectious foci in general. Since exophthalmic goiter following such procedures usually occurs in those operated upon under local anesthesia, it is suggested that the candidate for tonsillectomy and other minor surgical procedures be studied pre-operatively with a view to determining whether it would not be best to administer a general rather than a local anesthetic. The following are typical examples of this form of psychic trauma:

CASE 67.—Mrs. L. C., 26, developed the disease within a few weeks after tonsillectomy.

CASE 68.—Mr. M. K., 32, had undergone tonsillectomy and appendectomy 6 months before the development of severe Graves' syndrome.

CASE 69.—Miss P. P., 26, had undergone tonsillectomy a few weeks before the development of Graves' syndrome.

CASE 70.—Mrs. S. S., 30, developed a severe form of exophthalmic goiter following tonsillectomy performed a year before, cholecystectomy and appendectomy 8 months before and 2 curettage operations in the same year.

CASE 71.—Mr. M. M., 29, underwent appendectomy. Symptoms of Graves' disease appeared immediately after operation.

CASE 72.—Mr. H. D., 32, presented a similar history.

CASE 73.—Mrs. W. D., 23, underwent appendectomy 10 months prior to her baby's birth. Frank symptoms of exophthalmic goiter were noted after childbirth.

CASE 74.—Mrs. F. L., 47, developed the disease following a hysterectomy.

CASE 75.—Mrs. C. F., 24, underwent a curettage without a general anesthetic, and developed Graves' disease a few weeks thereafter.

CASE 76.—Mrs. R. MacD., 43, traced her symptoms to shortly after the fear and pain experienced on the extraction of molar teeth.

7. INTENSE WORRY OVER FINANCIAL REVERSES AND DISTRESS.

The business depression has exhibited in the human make-up weaknesses which otherwise would have been unrevealed. Sudden deprivation of the accustomed standard of living and sense of security is an insult to pride and a shock to the nervous system. Since the Wall Street spectacle of 1929 scores of sufferers from exophthalmic goiter whose plight can be ascribed to financial losses have come our way. Here are a few examples:

CASE 77.—A housewife of 43 developed Graves' disease several weeks after her husband lost all their savings in the stock market crash.

CASE 78.—A man of 38 was a wealthy real estate operator prior to 1929. The marked depreciation in real estate values resulted in huge losses in his

holdings. Finally in 1930 he became bankrupt. A month later he was a subject of typical exophthalmic goiter.

CASE 79.—A man of 40, heretofore highly respected socially and financially, found himself accused of dishonesty in business dealings and in course of time was sued by some of his creditors and abandoned by his friends. A few weeks later he was bed-ridden with a critical form of exophthalmic goiter.

CASE 80.—A well-to-do widow of 55 retired from the millinery business in the spring of 1929 to partake of the benefit to be derived from the hectic rise in security values. She believed the stock market crash to be a temporary reaction and supported her holdings by advancing all the money she could lay her hands on. Subsequent further demands by her brokers for more margin found her depleted. She was sold out, became bankrupt and obliged to seek employment. The resulting nervousness, at first diagnosed as nervous breakdown, was soon found to be a severe attack of exophthalmic goiter.

CASE 81.—A woman of 24 developed exophthalmic goiter several weeks after her husband's suicide due to losses in the stock market crash.

CASE 82.—A widow was sending her daughter of 18 through college. The mother lost all her money in the stock market crash. Following a month of grieving over the discontinuance of her studies in preparation for a career, the daughter developed exophthalmic goiter.

CASE 83.—A woman of 35 developed exophthalmic goiter several weeks after a mortgage foreclosure on her home.

CASE 84.—A man of 52, unemployed for a year, had used up his life's savings to keep his wife and family in relative comfort, and now was obliged to resort to charitable assistance. This was soon followed by the development of severe exophthalmic goiter.

CASE 85.—A school teacher of 60 lost her life's savings in the stock market crash. The resulting nervousness deprived her of her capacity for teaching and she became indebted to her relatives. Within a few months her worries culminated in a very severe form of exophthalmic goiter.

CASE 86.—A man of 50 who did not gamble on the stock market but had put away considerable money for a rainy day, found himself penniless when the bank to which his money was entrusted failed. He soon developed extreme nervousness which resulted in exophthalmic goiter.

CASE 87.—A woman of 45 developed exophthalmic goiter shortly after the following experiences: the loss of her husband's investments in the stock market, his bankruptcy in business, failure of the bank in which his cash reserves were deposited, his inability to find work, the presence in the family of a child with infantile paralysis, and increasing indebtedness to relatives.

CASE 88.—A woman of 58 had resources consisting of an apartment house in which she had an equity of approximately $8,000 and upon which there existed $80,000 in mortgages. In the autumn of 1929, because of reduced rentals, she found herself incapable of keeping the property in spick and span condition. Thereupon most of her tenants moved away. She soon found herself without income and without capacity to pay her obligations

on the property. Foreclosure proceedings were started, and when the house was sold by the sheriff, she was left without means of support. An attack of so-called nervous indigestion was followed by what was diagnosed as nervous breakdown, and in the course of a few months the patient was a typical subject of severe exophthalmic goiter.

8. PSYCHIC TRAUMA INCIDENT TO PREGNANCY AND CHILDBIRTH.

It appears that parturition, associated as it is with apprehension for self and offspring as well as fear of the ordeal of labor, is more likely to serve as a provocative psychic trauma than pregnancy itself. In our series of patients 4 per cent developed exophthalmic goiter shortly after delivery. The following are examples:

CASE 89.—Mrs. I. W., 42, presented the syndrome since the birth of her baby 14 months before.

CASE 90.—Mrs. B. B., 30, developed symptoms of Graves' disease after the sixth month of pregnancy.

CASE 91.—Mrs. L. R., 32, developed Graves' syndrome after a miscarriage.

CASE 92.—Mrs. C. V., 40, stated that the Graves' syndrome began after an instrumental delivery 18 months before.

CASE 93.—Mrs. D. M., 24, stated that her symptoms began after delivery of her child by Cæsarian section.

CASE 94.—Mrs. C. M., 48, thought she was pregnant, became intensely chagrined because of her age and developed exophthalmic goiter.

CASE 95.—Mrs. J. P., 29, developed Graves' disease following delivery of her baby, which she had tried to dispose of by abortives shortly after conception.

CASE 96.—Mrs. M. M., 34, developed Graves' disease after the fourth consecutive annual delivery; this baby, at least, was not wanted.

CASE 97.—Mrs. F. M., 40, had a narrow escape from septicemia following a criminal abortion.

CASE 98.—Mrs. A. G., 24, developed Graves' disease after undergoing a second Cæsarian section.

9. PSYCHIC TRAUMA OF WORRY INCIDENT TO WORK OR STUDY.

Especially in recent years intensive educational and occupational maladaptation has apparently been an exciting factor in the development of Graves' disease. Many claim to have had a "nervous breakdown" weeks, months and occasionally a year or two preceding the onset of the existing syndrome. The patient's description of the "nervous breakdown" usually corresponds either to early or to atypical Graves' disease. In many cases the apprehen-

sion, sensations of trembling, palpitation, restless sleep and undernourishment were temporarily ameliorated, and the individual was capable of resuming some or all of the customary duties. A relapse soon followed which culminated in frankly outspoken Graves' disease. The following cases exemplify this form of psychic trauma:

CASE 99.—Mrs. J. J. M., 31, school teacher, was intensely worried over unmanageable classes.

CASE 100.—Miss E. A., 25, was constantly "worried sick" over her office work which was of difficult and most exacting character.

CASE 101.—Mrs. H. A., 28, suffered from overwork incident to retaining a difficult position and attempting to take care of her household and sick husband simultaneously.

CASE 102.—Miss D. H., 28, school teacher, was overworked and overconscientious, habitually taking much work home with her, teaching night school and summer school and depriving herself of adequate sleep.

CASE 103.—Mr. L. I., 27, worked very hard through college. This he thought reduced his resistance, but he attributed the direct cause of his attack of exophthalmic goiter to his 7 months' service in the navy during the World War.

CASE 104.—Miss M. C., 29, developed a severe form of the disease following a prolonged period of intensive overwork at college.

CASE 105.—Mr. J. F., 40, developed the syndrome during the intensive worry and overwork incident to his duties as milk inspector during a widespread "milk strike" between farmers and city concerns.

CASE 106.—Mrs. K. C., 32, deprived herself of much sleep during a prolonged period of worry and overwork attempting to maintain ownership of three hat shops simultaneously.

10. GRAVES' DISEASE APPARENTLY FOLLOWING GENERAL OR FOCAL INFECTION.

Such general infections as influenza, pneumonia, tuberculosis and syphilis were given as the probable starting point of Graves' disease in approximately 2 per cent of our series. Possibly the more plausible exciting cause, though not elicited, was either deliberately unrevealed by the patient or forgotten. The same might be said of focal infections in teeth, tonsils, sinuses, Fallopian tubes and elsewhere, which also occurred as apparent exciting causes in about 2 per cent of our histories. Though on general sound principles we must remove diseased tonsils in all goiter patients, it is felt that these and other infectious foci play but contributory etio-

logical rôles in exophthalmic goiter. It is conceivable that infections tend either to increase the predisposition to, or aggravate the syndrome of Graves' disease, thus playing an indirect rôle.* The following cases are examples of infections apparently serving as contributory or exciting causes of Graves' disease:

CASE 107.—Miss D. C., 14, developed the syndrome while recuperating from an attack of acute follicular tonsillitis and influenza.

CASE 108.—Mr. L. W., 37, dated his symptoms from an attack of tonsillitis.

CASE 109.—Mrs. A. L., 27, developed Graves' disease during convalescence from pneumonia.

CASE 110.—Mrs. H. T., 28, dated her attack of exophthalmic goiter from the time of an attack of acute inflammatory rheumatism.

CASE 111.—Miss L. W., 17, developed Graves' syndrome within a few weeks after an attack of influenza.

CASE 112.—Miss M. B., 25, developed a mild form of Graves' disease during convalescence from influenza.

CASE 113.—Mr. C. S., 28, presented a similar history.

CASE 114.—Mr. S. A., 33, presented Graves' disease shortly after recovery from an attack of pleurisy with effusion.

CASE 115.—Dr. S. T., 30, a dentist, developed the syndrome within a few weeks after convalescence from a severe dental infection.

CASE 116.—Miss A. A., 16, presented symptoms of the disease while recuperating from an attack of quinsy.

II. EFFECT ON SOME PREDISPOSED INDIVIDUALS OF DRUGGING BY THYROID SUBSTANCE OR IODINE.

Apparently a percentage of those predisposed to exophthalmic goiter, *i. e.*, possessed of the "Graves' constitution" are sensitive to the effects of thyroid and iodine medication. The following are examples:

CASE 117.—Mrs. N. J., 37, developed exophthalmic goiter within several weeks after beginning a course of self-imposed thyroid drugging in efforts to reduce her weight. She succeeded too well in her task, presenting a severe form of Graves' disease.

CASE 118.—Mrs. T. T., 24, developed Graves' disease after a course of 3 months' treatment for obesity, the "reduction medicine" having been purchased from a mail order concern.

CASE 119.—Mrs. V. W., 44, dated her Graves' symptoms from the time she drugged herself with "goiter medicine" bought over the counter at a drug store.

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* Tonsillectomy alone with the expectation of curing exophthalmic goiter is usually disappointing; this procedure should be regarded as supplementary to more direct therapeutic measures in treatment.

CASE 120.—Miss C. F., 30, developed the syndrome shortly after undergoing a self-imposed course of treatment with Lugol's solution for treatment of an alleged goiter.

Comments.—In 2 per cent of our series the disease followed the ingestion of iodine for the cure of an imaginary or actual simple goiter. Since iodine has proved successful in prophylaxis and treatment, these cases would seem to require additional proof of causal relationship.

During recent years the avalanche of quack obesity "cures" described in newspapers and magazines has reached enormous proportions. Approximately 1 per cent of our series presented a history of the ingestion of either thyroid extract * bought over the counter, or a well advertised reducing nostrum, as the only explicable reason for the development of the disease.

The question arises: since thyroid extract ingestion is said by many investigators to be capable only of producing thyroid toxemia in man, how does it produce Graves' syndrome? The answer probably resides in the type of individual taking it, *i. e.*, the existence of predisposition to the malady.

* In this connection it is interesting to note the observation of Friedgood [6] who points out that (a) iodine does not alter the clinical symptoms of hyperthyroidism induced by the ingestion of thyroid extract in man; (b) iodine has no tangible effect in normal people nor does it prevent experimental hyperthyroidism in man; and (c) the sympathetic nervous system, not the thyroid, apparently plays a major rôle in the pathogenesis of Graves' disease.

Of course, our cases could appear instances of *post hoc ergo propter hoc*, since there is the logical possibility that an individual taking thyroid substance may develop Graves' disease in spite of, rather than because of the drug. Recent experiments by Friedgood,[7] Loeb [8] and others indicate that while thyroid ingestion may aggravate the symptoms due to thyroxin, it may simultaneously protect the thyroid gland from hyperplasia. However, discussing therapy from the clinician's viewpoint solely, I would state that almost invariably the administration of thyroid substance to sufferers from early Graves' disease results in speedy development of the typical severe syndrome, and thyroid administration in a typical case quickly results in a perilous crisis. In the cases of Graves' disease under our observation which were previously treated with thyroid substance, the thyroid gland was indeed somewhat smaller than is observed in the average case, but the general condition was critical.

The Threshold of Graves' Reaction.

In our series of cases the time when the disease asserted itself following the occurrence of a psychic trauma apparently varied with the susceptibility of the individual and the intensity of the trauma. In comparatively few instances the symptoms of the disease appeared to present themselves with hardly a discernible interval of time between apparent cause and effect. In most cases, however, several days or weeks elapsed before the patient became actively aware of significant symptoms.

Exophthalmic Goiter without Apparent Exciting Cause.

Despite careful history-taking and physical examination, approximately 6 per cent of our series presented no apparent exciting cause at the first interview to account for the onset of exophthalmic goiter; in half of these, the history of a psychic trauma was subsequently elicited. It is felt that in most of these there probably existed a form of psychic trauma difficult of recall to memory. Though it would seem that a psychic trauma followed by the development of exophthalmic goiter would make an indelible impression upon the patient's mind, this is occasionally not the case, especially when bodily injury was not sustained. In many patients in whom there was an unmistakable history of psychic insult, this information was obtained only after the second or third interview, or occasionally through an almost psychoanalytical process. It was then that the event suddenly loomed forth in the patient's mind in all its detail, and the history was completed. Agnes Conrad's [9] observations in a series of these patients are of particular interest to the historian. She concludes her excellent contribution on the subject as follows:

> We do not know what effect different emotional habits in the first year of life may have on endocrine balance. We have all seen the habitus of a child change with altered conditions in the home. Can such alterations persist as a constitutional type characteristic of the difficulty, such as timidity? We do not know. It may well be that the original endocrine endowment of our patient, or that which lies back of the endocrine endowment is responsible for their failure to develop the courage of self-determination. It must be remembered that these people are not lacking in push and economic courage, especially the women, and that some of both sexes have calmly faced great

physical danger, but the stuff that independence of personal ideal, moral self-confidence, is made of, may conceivably be relatively deficient in this diathesis. I believe, at any rate, that the emotional characteristics should be recognized in the concept of Graves' disease.

In Graves' disease we must not hastily regard a history as complete, but we must exercise utmost patience in securing added significant information. Many of our histories require considerably more than an hour of questioning; half the time thus expended is devoted to an inquiry into the mental life of the individual. Occasionally a patient has undergone a psychic trauma the nature of which is distasteful to narrate, hence this information remains unrevealed to the physician.

Conclusions.

1. In our series of 5000 cases of exophthalmic goiter approximately 90 per cent presented a clear history of psychic trauma which significantly preceded the disease. In 4 per cent of the series there was elicited a history of general or focal infection as the possible exciting cause of the disease. In 3 per cent the ingestion of iodine or of thyroid extract in tablets or in the form of obesity "cures" was regarded by the patients as the cause of the symptoms. In the remaining 3 per cent there was no discoverable apparent exciting cause to account for the onset of the disease.

2. It is felt that in most cases where infections appear to serve as the exciting cause and in those in which no exciting cause was discovered, an undisclosed psychic trauma may have preceded the syndrome. However, infections probably increase susceptibility or intensify the manifestations of the syndrome.

3. It appears that inherent predisposition (Graves' constitution) is a prerequisite to sensitivity to psychic traumata.

4. Individual sensitivity to psychic traumata varies qualitatively and quantitatively.

5. Since psychic trauma precedes the appearance of Graves' disease in the vast majority of cases, this factor would appear to implicate, more or less directly, the higher cerebral centers in the etiology of the syndrome.

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PROBLEMS OF CONVALESCENCE AND CHRONIC ILLNESS.*

A Preliminary Discussion.

By H. FLANDERS DUNBAR, M. D., Ph. D., Med. Sc. D.

Dr. Strecker [1] once said: "It is not an overstatement to say that fully 50 per cent of the problems of the acute stages of an illness and 75 per cent of the difficulties of convalescence have their primary origin not in the body, but in the mind of the patient." Percentages are given variously by various authors but indicate our general awareness of the practical importance of the psychic component in the reaction of the organism to disease.

On the other hand, we know more about the hazards of acute illness than about the hazards of convalescence, and very little has been said specifically of the "75 per cent of the difficulties of convalescence" that are said to have their primary origin in the mind. We have paid relatively little serious attention to that large group of patients who, already well on their way to an excellent recovery, suddenly and unaccountably develop what we are coming to call the "chronic invalid reaction" and never quite recover. The general physician, as a rule, judges convalescence in terms of the disease process somatically considered and makes his prognosis, judging the likelihood of relapse, on the basis of the organic damage which remains. Patients who remain invalids in the absence of organic damage stand a fair chance of seeing a psychiatrist sooner or later. Many patients with organic damage, however, develop a symptomatology which is very little, if at all, dependent on this damage, and become invalids unnecessarily; and these patients are less likely to receive psychiatric attention.

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[1] Strecker, E.: Mental Hygiene. Nelson Loose-Leaf Living Medicine, Vol. VII, Chapter XII.

From an economic and humane, as well as from a scientific point of view, such patients merit serious study. They fill many of our hospital beds and crowd our out-patient departments.

For the sake of concreteness and in order to facilitate investigation of the psychological mechanisms involved, this problem has been studied in serial admissions of patients presenting specific disease pictures where the disease process, at least from an organic point of view, is more or less clearly understood. The following presentation is based on a study of convalescence in serial cardiac admissions, against the background of study of convalescence in diabetic and fracture patients. Of course, some of these patients recovered apparently completely (some of them after vicissitudes), and some developed what we have come to call the "chronic invalid reaction," returning to the hospital as often as three or four times in a year. Among these latter there were some patients in whom the extent of the organic damage may be said to have accounted for the severity and frequency of the relapses. There were some, even with severe organic damage, in whom attacks and relapses were precipitated by definite emotional conflicts who have remained completely free from symptoms after a period of psychotherapy, although the structural damage present, of course, remains.

The purpose of this preliminary paper is not to analyze these groups in terms of percentages nor to discuss in detail the fundamental psychological mechanisms involved, nor to contrast the groups studied. It is hoped to give such material later as part of a larger study of mental factors in organic illness. The accumulation of data concerning psychological mechanisms and the problem of localization of illness requires intensive study and is of fundamental significance particularly to those psychiatrists who are trained to deal with these mechanisms on the deeper levels. It is the purpose of this paper, however, to call attention to certain simpler clinical facts of importance in all three groups studied which are rather generally overlooked, although they are of fundamental importance to the general management of illness and to a cooperative relationship between general physician and psychiatrist.

I. Preparation for Illness and Its Course in Terms of Implications for Convalescence.

A. General considerations.

Study of any patient in the convalescent period with a view to discovering determining factors in his recovery, or in his tendency to relapse, or to become chronically ill, necessitates study of the disease process itself. Furthermore, study of this process in purely organic terms is insufficient. We often find patients lying side by side having suffered from the same illness, being of apparently the same general constitutional type, and yet making very different types of recovery.

Inquiry into the disease process in such patients brings into strong relief the importance of the predisposition toward or preparation for illness in psychological as well as physiological (including anatomical and constitutional) terms. This has been variously expressed; it has been pointed out that "the bacteriologist . . . . no longer teaches that bacillus typhosus, for illustration, is the 'cause' of typhoid fever. It certainly is the only known specific cause, nevertheless the chain of etiology of typhoid fever is made up of other links also, and among them some which he has named 'immunity,' 'resistance,' 'susceptibility,' etc., and these, he knows, the affective psychical states of the patients can easily modify." [2]

Furthermore, we are beginning to find that many illnesses which the hospital clinician knows only in the later organic phase, pass through a larval (or functional) phase where symptomatology is more or less exclusively a matter of hyper- or hypotonicity, hyper- or hyposecretion, or changes in the ability of the equilibrium to return to stability, changes which are reversible in direct relationship to emotion. The mechanisms in both psychological and physiological spheres, by way of which reversible changes become irreversible, leading to gross anatomical changes, or back to health and normality, can be understood only by taking into consideration the question of predisposition to and preparation for illness.

[2] Emerson, C. P.: The importance of the emotions in the etiology and prognosis of disease. Bull. New York Acad. Med., 5, 985-1004, 1929.

Emotional factors predispose to illness in several ways. The following points to which attention has been called variously in the literature [3] were illustrated in the groups of patients studied. *First*, behavior patterns on the part of the organism resulting from its anxiety and conflicts, may predispose to illness in the sense of actually bringing about its injury from the environment.[4] Many so-called accidents occur on this basis, and the process operates also in subtler ways, but this fact is sufficiently familiar to need no illustration. *Second*, certain physiological changes, particularly contractile and secretory, occurring in direct response to emotion, may predispose to illness, either directly as in the case of hyperthyroidism and cardiospasm, or indirectly as in the case of peptic ulcer.[5] Thus, *third*, many symptoms can be understood only

[3] For a review of this literature cf. Emotions and Bodily Changes. A review of the literature on psychosomatic interrelationships, 1910-1933. By H. Flanders Dunbar. New York: Columbia University Press, 1935.

[4] Kempf, E. J.: Postural tensions for normal and abnormal human behavior, their significance, Calif. & West. Med. 35: 182-184, 272-274, 1931, for example, suggests: "Our postural tensions reveal our way of holding our affective pressure so as to fit it to our situations as we see them. . . . . Often the form of the postural tensions reveals the nature of the suppressed or repressed affect." Kempf develops what he calls "the law of neutrality of affective pressure," to wit: "Whatever variations of our affective pressure may be developed, whether love, fear, hate, shame, sorrow or jealousy, they force us to get from our particular environment (or create in it) situations which will counter-stimulate us and neutralize these variations until we return to a state of comfortable equilibrium." In this connection Hoagland's study on "animal hypnosis" is suggestive, especially in his discussion of the animal's two modes of reacting to stimuli, one the usual one studied: appropriate motor adjustments (attack, retreat, manipulation); and one usually neglected: cessation of all movement. (Hoagland, H.: The mechanism of tonic immobility—"animal hypnosis." J. Gen. Psychol. 1: 426-447, 1928.) Studies of this kind provide an important introduction to the problem of muscular tension and those illnesses in which it is an important factor. The reader interested in this particular subject should follow S. Rado's formulations concerning the general problem of sadism and masochism, also.

[5] In other words, it has been pointed out that peptic ulcer cannot be psychogenic as, *e. g.*, globus hystericus or cardiospasm; it cannot be the organ-symbolic expression of an emotional conflict and tell the story of this conflict, as it were, in the "organ-language." It is well known that the secretory and motor functions of the stomach are markedly influenced by psychic factors. Accordingly, to the extent to which disturbances of these functions play a rôle in the etiology of ulcer, psychic factors must be recog-

if one thinks of indirect psychic etiology. Hemorrhoids constitute a simple example: one is not inclined to think of psychogenesis of hemorrhoids or to treat them by psychotherapy. On the other hand, hemorrhoids are in most cases the result of constipation, which in turn is frequently psychogenic, either through hyper- or hypotonicity of the intestinal musculature, or both. Thus the hemorroids are often indirectly psychogenic, and as a matter of fact frequently disappear if the constipation is cleared up by psychotherapy.

Fourth, and perhaps more important, though less understood than any of the phenomena thus far mentioned (the organism's tendency to subject itself to injury by the environment, or clear-cut physiological changes occurring in response to emotion), is the effect on the organism of chronic emotional stress. It has been pointed out variously, and demonstrated to some extent experimentally,[6] that emotional stress may limit the adjustability of the organism in the sense of its ability to regain a stable equilibrium physiologically as well as psychologically. This provides additional background for the contention that to be healthy is to be free of anxiety.

Attention cannot be called too often to the fact that in many cases the fundamental emotional stress resulting from anxiety or conflict has been excluded from consciousness, or expressed

nized as etiological. In other words, as far as we are dealing here with psychogenesis, it is not a specific, but an unspecific or indirect psychogenesis. This delineates the psychotherapeutic indications in ulcer, which, on the basis of the literature, may be stated in general as follows: Psychotherapeutic elimination of disturbances in motor and secretory function may be of preventive value. When the ulcer is once established, psychotherapy may aid general medical therapy (or make surgical intervention unnecessary) by eliminating the functional disturbances that may block general medical therapy; it may, furthermore, prevent recurrences which are likely to occur even after successful medical or surgical treatment, unless the functional disturbances have been eliminated. Cf. *e. g.* Schindler, R.: Die Psychoneurosen des Verdauungstraktes: Differentialdiagnose, Psychogenese und Psychotherapie, Bericht üb. d. II. Allg. ärztl. Kongr. f. Psychotherapie. Leipzig: Hirzel, 184-194, 1927. For a discussion of this whole question cf. Dunbar, H. Flanders: Emotions and Bodily Changes. A survey of Literature on Psychosomatic Interrelationships, 1910-1933, p. 296, Columbia Univ. Press, 1935.

[6] Cf. Hochrein, M., J. Michelson, and H. Becker: Schlaf, Schlaflosigkeit und körperliche Arbeit in ihrem Einfluss auf den Blutchemismus. *Pflüger's Arch. f. d. ges. Physiol.* 226: 244-254; 738-745, 1930-31.

in the form of an organic symptom, leaving the patient entirely unaware of its existence.[7] This explains in part the fact that so many patients with organic illness, in whom psychic factors play an important rôle, give the general medical man the impression that they are perfectly normal individuals and when questioned reveal no striking emotional problems. In dealing with the problems of illness and convalescence, however, it is essential that such pathogenic factors do not pass undetected.[8]

The practical importance of the organism's predisposition to and preparation for illness is being recognized more and more generally, at least in the so-called organic sphere. An example is our modern handling of scarlet fever and diphtheria in children with the aid of the Schick and Dick tests to determine susceptibility, supplemented by removal of predispositions wherever pos-

[7] Psychopathologically speaking, it is obvious why this should be so. The expression of the emotional conflict in somatic symptoms serves in the patient's psychic economy the very purpose of keeping the conflict from the conscious mind. One would not expect, therefore, to find the conflict in the conscious mind, and the cure consists in redirecting the conversion process from the somatic into the psychic channel where it can be dealt with. The conversion process has been described as follows: "Before a conversion symptom can make its appearance, a minutely detailed preparation not only in the psychic, but also in the organic sphere is necessary. Frequently the changes in the organ involved in the conversion take place quite unnoticed, and it is therefore difficult, or actually impossible, to investigate them in their initial stages. For this reason they are often overlooked. When, as occasionally happens, they are discovered, they serve to prove that the transformation from the psychic into the organic is by no means a sudden one and that the transition is not made abruptly—as it were at a single bound. . . . . It is in organic illness that the process of conversion finds its secret outlet, which is blocked by inhibitions in the healthy individual." Deutsch, F.: Zur Bildung des Konversionsymptoms, Internat. Ztschr. f. Psychoanal, 10: 380-392, 1924.

[8] The patient may be entirely unaware of an emotional conflict, although this conflict may be the principal etiological factor: "I am stressing this because many colleagues have said to me—'but I've asked the patient over and over if she worries or if she is fearing anything, and she insists she isn't, so I'm sure there can't be any disturbance of this kind.' It is just about as consistent to take the patient's word for this sort of difficulty as it is for you to accept her word that she hasn't typhoid when you know she has, or that she hasn't appendicitis when you know she has an appendix that is about to be ruptured." (Mühl, A. M.: Problems in general medicine from the emotional standpoint. Psychoanalyt. Rev. 16: 390-396, 1929.)

sible. But this is a principle capable of much wider application as we become increasingly clear as to mechanisms involved. For example, persons whose pattern of reaction is dominated by extreme tension, involving spasm of striated or smooth musculature or both, are predisposed to illness in which muscular spasm plays an important rôle, such as hypertension, peptic ulcer, chronic constipation, colitis, etc. Furthermore, if one such syndrome be cured and the tendency to spasm remains, the individual in all probability will not stay well.

Experience seems to indicate that in most illnesses there is a definite preparation on the psychological side as well as on the physiological side. The significance for convalescence of such factors as those just listed in relation to predisposition to illness will be indicated in connection with typical case histories.

B. ILLUSTRATIVE CASE HISTORIES.

CASE I.—In order to save time I shall begin with the patient presented last year, reminding you only that she had been an invalid for 18 years before she came for treatment and had been treated unsuccessfully for two years in a general medical clinic. Her complaints were stomach trouble and high blood pressure of many years' duration, with in addition, angina pectoris accompanied by severe attacks of palpitation and dyspnea over the two years preceding admission.

Physical Findings.—The physical examination and all laboratory tests, including gastrointestinal series and EKG, were negative except that blood pressure recorded at this time was 190/100 and heart rate 130.

Considering this patient's story in terms of *predisposing* factors to her illness, we find on the *physiological* side a possible hereditary factor in cardiac disease on the part of the patient's mother. On the other hand, assumption of a hereditary factor often blinds the physician to psychic factors which are of far greater clinical importance than a possible hereditary factor. In this patient at least, a large part of what might be called a hereditary factor proved to be "pseudo-hereditary," resting on a psychic basis, involving imitation and identification. Before her initial visit to the medical clinic her father from whom she had been estranged since her marriage, had died of cancer of the stomach. (His first stomach operation had coincided with her marriage in which she had both disobeyed and refused to support him, following which her own gastrointestinal complaints began.) After his death she went

to care for her mother who was suffering from angina pectoris and high blood pressure from which she died six months before patient's first visit to the psychiatric clinic. The patient's attacks of dyspnea and palpitation had begun when she went to nurse her mother, and the anginal syndrome, together with nightmares and sleeplessness, after her mother's death concerning which she felt unaccountably guilty.

These symptoms, furthermore had a definite meaning to the patient which became clear in the course of treatment. She complained that her mother was always nervous and sickly and her father could never earn enough money. She had felt herself overpowered, crushed by the personality of the older sister who took the place of the weak and sickly mother, forcing her to give up school and go to work to help support the sick parents. This situation was a determining factor in her unfortunate marriage against her parents wishes at the end of six years struggle with them and in her subsequent illness. This will be clarified further by way of illustrating certain general conclusions.

The fact that this patient has remained well for two years, there having been no symptom free periods in her 18 years of invalidism, is the more interesting in that her external situation has not changed very much. Although, as I reported last year, the patient's attitude toward her husband changed, and during the first year following the treatment she helped him so much with his work that he went rapidly ahead in business, nine months ago he again suffered serious financial reverses and entered into a new love affair. The patient has reacted to these things on a common sense basis rather than by symptom formation and has succeeded in staying well during the second year since the cessation of treatment although the external situation is again more difficult. The fact that the blood pressure continues at a normal level means that she is to some degree protected against the secondary or organic changes which probably would have developed had her blood pressure persisted, at a level of 200/100.

CASE II.—Another case history is that of a married woman 28 years old with cardiac hypertrophy, mitral stenosis and insufficiency, aortic insufficiency with probable stenosis, and chronic myocarditis, probably on a rheumatic basis, who for two years preceding her admission to the clinic had been incapacitated by attacks of dyspnea, palpitation, cyanosis and fainting so that she

was confined essentially to the house, took all her meals with her mother to avoid the exertion of cooking, etc. This patient (after a period of psychotherapy with no medication) became completely free from these attacks, able to walk considerable distances, and to do her own housework. She is now in the eighth month of pregnancy completely symptom free, although she had been told that should she decide to have a child she might have to spend the last two or three months of pregnancy flat on her back because of the seriousness of her heart disease.

In this patient also there was a definite physiological and psychological preparation for illness. On the *physiological* side, there is a possible hereditary and constitutional predisposition in the direction of disease of the cardiovascular system, from which her father died, although in view of the patient's close association with her father in his attacks, a "pseudo-hereditary" factor has to be considered also. This patient had growing pains following a tonsillectomy which may have been the only symptoms of an actual rheumatic fever. This is the only basis found on which to explain the rather extensive cardiac involvement present when the patient first came for treatment.

As came out during the course of the treatment, there had been an extensive *psychological* preparation of this patient for some type of illness, and a precipitating factor was her fear that her husband would leave her, as well as her fear of pregnancy.*

* In discussing her symptoms, the patient revealed the fact that the attacks of palpitation and dyspnea and the sense of being smothered occurred only when she was waiting for her husband to come home, or when she saw a pregnant woman, never with physical exertion unless in combination with one of these two factors. (She had several such attacks when she saw pregnant women in the clinic elevator.) In associating on the subject, the patient told of her terror when menstruation began. She thought she was bleeding to death and dared tell no one about it, but the boy friend whom she later married. Her tonsillectomy, however, occurred immediately thereafter, and she was again afraid she would bleed to death (a hemorrhage occurred). Furthermore, she fought violently against going under ether, and associates her present attacks of dyspnea accompanied by a feeling of the walls closing in upon her, with this experience.

In discussing the episode of the tonsillectomy, the patient experienced an overwhelming sense of terror accompanied by attacks of dyspnea and palpitation, her lips becoming blue. The patient's resentment against her mother and the fear of loss of her mother's affection were discussed. In this connection she recalled her first cardiac attacks associated with her father's death, and the fact that she had immediately replaced her father by her one life-long boy friend who had been "both father and mother" to her, and

Again, relief of her symptomatology is the more significant in that her husband's attitude toward her has not changed. She herself however, has become much less dependent on him and incidentally no longer runs to her mother at the slightest provocation. In other words, this case like the last one, indicates that it is possible to change the patient's attitude toward a situation even where the situation itself cannot be changed. Furthermore, bringing about such a change in the patient has distinct advantage over the attitude which says, " well anyone would be worried, or would be nervous, living in such a situation. We will see that she gets enough sedative to keep her quiet." It is important to realize that the degree to which perfectly normal worries react disastrously, or produce symptoms, in the physical sphere can be definitely decreased with careful handling of the underlying emotional problems.

These two patients were chosen as illustrating the general problem of convalescence for several reasons. *First*, the first patient had been an invalid for 18 years in spite of the absence of any demonstrable organic damage. The second patient had been an invalid for two years on the basis of serious organic damage. Both have remained symptom-free for two years and are so still at time of printing (3 years), the second patient having remained active until

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that now she was about to lose him. She felt he couldn't really leave her when she was so sick. After going over such material as that just indicated the patient became symptom free and remained so for two years without medication and with no definite restriction of diet or activity.

Late in 1933 she came in saying that she had decided that she would like to have a child and wanted to know whether it would be safe for her. She said: " It's funny, I want one now when we have less money than we had before, and then I thought we couldn't have one because of lack of money." Before there was time to go into this question in detail she became pregnant accidentally in January, 1934. She began to dream of her father and to contrast him in her mind with her husband who still neglected her. At the end of the second month of pregnancy, the father of the patient's best friend died. The patient went to the cemetery, and became very nervous when the body was lowered into the grave. All through the next day she felt nauseated and dyspneic. She had the old sense of walls closing in. All of a sudden she hated being pregnant. Then shortly following an automobile ride an abortion took place, which she said afterwards really relieved her very much, although she feared the return of the same old shaking spells accompanied by dyspnea and palpitation rather paroxysmal in character. After this material was worked through came the successful pregnancy referred to above.

3 days before normal term delivery of a normal boy. *Second,* in both patients attacks were precipitated by specific emotional stimuli, *i. e.,* not by every exciting situation, but only by situations or discussions which touched on the patients' underlying conflicts. Symptomatology thus occurring in response to the bringing up of specific emotional material during the therapeutic sessions disappeared after this was worked through. This was true in spite of the fact that in the second case, there remained not only the organic damage but also an additional reason for dyspnea, the pregnancy. *Third,* the psychological component in the preparation for illness in these patients was important. In both of these cases a hereditary predisposition or constitutional diathesis may be assumed although it may be said in no instance to be proven. In each case the picture could be accounted for on the basis of a "pseudoheredity." *Fourth,* the psychological significance of the syndrome for the patient was revealed in each case. The major points made clear to the patient will suffice here without going into the problem of deeper mechanisms which had to be worked out in the course of treatment.

The *first patient* was at war with the home atmosphere, reproaching her parents for not taking care of her. In spite of her open rebellion, six years' struggle were required for her to bring herself to marry contrary to the wishes of her family. Her language when discussing this situation in its various aspects was colored by phraseology relating to the respiratory system: she was "overpowered, crushed, and smothered" by her older sister, she "couldn't breath in the home atmosphere." "I felt an iron hand around my chest"; "I wanted to smother them in their graves"; "I felt as if I might get asthmatic."

The *second patient* was afraid of independence and concealed a great deal from her parents for fear of losing their affection. She was particularly afraid of pregnancy, her attacks often having been occasioned by the sight of pregnant women. To any threatened loss she reacted with attacks and dreams and phantasies in which phraseology relating to the respiratory system was important. She felt she was being smothered or crushed, walls were closing in on her. She thought that "pregnancy shut off your breath"; she was horrified at the thought of people being smoth-

ered in their graves. "I thought how awful if he'd be still alive when they lowered him into the grave"; "I couldn't breath until I got out of the house."

Finally, each of these two cases is illustrative of a group or reaction type that stood out in the total material studied. *First,* as illustrated in the first patient, it may be said in general that there seems to be a psychic constellation related to spasms of the vessels and often of other musculature and body systems simultaneously, no matter what the organic diagnosis is.[9] Although there is not time to go into the material in detail, this was illustrated in the first case history given, where the patient herself spoke of her tendency to spasms. Incidentally, with the conclusion of her treatment there was a marked decrease in her general muscle tension and a disappearance of her constipation as well as of her hypertension. She lost what she called her tendency to have spasms and the muscles of her face relaxed making her look many years younger. This tendency to spasm is found also among fracture patients in whom also it delays recovery, sometimes helping to bring about recurrences or chronic invalidism. *Second,* as illustrated in the second patient, there seems to be also a psychic constellation predisposing to exaggeration of dyspnea and palpitation, irrespective of the cardiac situation. The dyspnea and palpitation in turn react unfavorably on such cardiac damage as may be present, interfering with sleep, occasioning additional fear, etc.

II. General Conclusions.

The material studied confirms the following suggestions which are to be found here and there in the literature:

First, to the usual diagnostic classification of illness some word should be added as to the psychic constellation, and an estimate of the psychic as well as of the physiological and anatomical basis for the symptomatology should be obtained. For example, there is a tendency among internists, particularly with such a syndrome as dyspnea and palpitation in the presence of organic cardiac damage, to base their diagnosis, prognosis and treatment on the extent of this damage, and to look no further. As a matter of

[9] Cf. Wolfe, T. P.: Dynamic aspects of cardiovascular symptomatology. Am. J. Psychiat. 91: 563-574, 1934.

fact, such symptoms may be even more definitely dependent on an emotional factor and more or less completely eliminated in the handling of the emotional problem even though the organic damage persists, as in the second case given.

Evidence has been adduced in the literature that in this way emotional factors may play a rôle in the development of chronic invalidism or hasten the fatal termination of disease of the cardiovascular system. Whether or not we are justified in saying that psychotherapeutic elimination of such symptoms exerts a favorable influence on the course of the disease itself, however, is a question that needs further investigation. Concerning the cases presented we may be justified in assuming definite benefit from the interruption of the hypertension, as well as from the elimination of the sleeplessness and the attacks of dyspnea and palpitation which were exhausting to these patients and kept them constant attendants of medical clinics.

Second, there is evidence that in organic disease the symptomatology is the more abundant and the more devastating depending on the amount of dammed up anxiety present, this being an important factor in the duration of illness including the tendency to relapse. It should be noted here that as was probably observed in the case histories reported, it could have been said that the illness was useful to the patient. In the first case the patient's invalidism obtained for her a good deal of attention, and was a weapon against her husband. In the second case the patient tried to get her husband's sympathy so that he would not leave her alone so much. It should be pointed out, however, that patients do not become seriously ill merely for such purposes. They get sick because the anxiety (perhaps brought to the surface by these situations) is part of a deep-lying neurotic anxiety or conflict. Few things can be more injurious to the patient than pointing out to him his secondary illness gain, or attempting to deprive him of it, without any attempt to relieve the primary anxiety or conflict. If, on the other hand, the underlying neurotic conflict is relieved as the patient becomes clear as to the emotional significance of his symptoms, the secondary illness gain is no longer important and he relinquishes it voluntarily and spontaneously, as happened in both cases.

Third, the detection and relief of conflicts and anxiety is one of the major problems of convalescence, and of utmost importance in preventing relapses and invalidism. Furthermore, the emotional element is important in patients who are not obviously neurotic and in patients whose symptomatology is not such as to be suspect because of its manifoldness or bizarre character.

Fourth, in the patients studied it could be shown that the organic symptomatology had a definite psychological as well as a definite physiological meaning for the patient, the disease process being best interrupted by intervention sometimes from the physiological side, sometimes from the psychological side, but frequently requiring both. This fact calls our attention again to the importance of cooperation between general physicians and psychiatrists in general practice and of psychiatric attendance on general medical wards. There is evidence that handling of such factors routinely would save expense and free many of our hospital beds.

Finally, it is suggested tentatively that the more deep-reaching the psychological component in the preparation for illness proves to be, the more intensive will be the therapy needed. It is this factor, not the trauma precipitating the first or any other attack and not primarily the severity of the illness physiologically considered, which is of importance for the patient's convalescence and safety against recurrence or the development of chronic invalid reaction.

DISCUSSION.

Dr. William W. Graves (St. Louis, Mo.).—All of us are gratified with the progress made in recent years toward bringing about better instruction of undergraduates in the problems of mental medicine. In this direction, medical education has been, and still is, woefully deficient in many medical schools. Were this not true, Dr. Dunbar would not have emphasized this point in her paper. If curriculum makers in our medical schools could each have a copy of Dr. Dunbar's paper, I believe it would contribute largely to the ultimate goal of the Committee on Psychiatric Education. It is, indeed, deplorable that the average medical student, until recent years, received wholly inadequate instruction in psychiatry. It should not be difficult to train the student in orderly history-getting, and the fundamentals of this effort are the family and the personal history. Both are important, if one would understand the patient's feeling, thinking and behavior. Many years ago, a woman came to my clinic in July for an emotional disturbance, and she was wearing a rather heavy waist and three undershirts. I said: "Why do you wear

such clothing in summer time?" She replied: "It is like this, my grandmother, my mother and two sisters died of pneumonia, and I don't want to take any chances." The psuedo-heredity, to which Dr. Dunbar referred, is amply illustrated in this case. Nobody has a perfect heredity. Heredity, as a predisposing factor to health or disease is important, but it is almost equally as important for the student to know what the patient thinks about his heredity. We cannot choose ancestors for our patients, but we can help them to correct their faulty thinking, if we know what they think about their ancestors. The patient's statement concerning his environment from his earliest years onward and what the patient thinks about his illness are surely important components of an orderly history.

Whether it be the worm we tread upon or the complex human organisms, the factors of heredity and environment are common to both. They are the fundamental factors which condition human emotion, thinking and behavior, and they cannot be appreciated without an orderly family and personal history. The evaluation of these factors is the foundation of our helpfulness to the patient, but such evaluation requires time and patience. The student untrained, as is too often the case, in the psychiatric approach to the study of health and disease can never become a safe practitioner of medicine.

DR. LOUIS A. SCHWARTZ (Detroit).—I have been very much interested in Dr. Dunbar's fine presentation. I think it illustrates what Virchow has said, that we ought to treat the patient as well as to treat the disease.

I think it is very important for psychiatrists who work in medical hospitals to do everything they can to help internists and surgeons evaluate the psychogenic factors as they present themselves in relation to physical diseases.

I think it was Dr. H. Emerson who made the statement that every case should have a psychological history taken as well as a medical history. When we see the important work of Draper in relation to body constitution and the growing knowledge about vegetative disorders, referring for example to Cushing's investigations regarding the formation of peptic ulcer in relation to lesions of the hypothalamus, we begin to realize the important correlations between function and anatomic structure and physiology.

I have been particularly interested in trying to evaluate the psychological phenomena associated with cases of tuberculosis, not only in the convalescent and hospital patients but also in cases that come to relief agencies who have very slight pulmonary lesions. They are apathetic, inactive, refuse to work, or fail to make a social adaptation. As psychiatrists we should assist medical men to deal with the psychogenic factors producing the attitudes of these individuals. Many doctors say they are malingering or they are lazy, etc., and to force on these people a work program is essentially unwise. I think the long protracted stay in a tuberculosis hospital, with "infantilizing" diet, with every protection afforded by kindly nursing care in the hospital, may bring out many latent psychological phenomena which will continue the need of that patient for further care in an institution.

I have in mind a patient I am dealing with at the present time, a girl of twenty-six, who had a thoracoplasty on one side, at Saranac for tuberculosis.

She developed the tuberculosis after graduation from college, yet she had had hysterical vomiting since the age of eight. She would vomit at not only an unpleasant idea, but when she was with her father, or even when she went with boys she liked. When she was going out to dinner she would go through a sort of "mental gymnastics" in order to reassure herself. Her condition became so exaggerated that when the telephone rang or people she anticipated seeing were coming to the house, she developed this vomiting.

I am not sure in my own mind whether her physical resistance which had been lowered by the vomiting predisposed her to tuberculosis. A study of the unconscious factors have shown some correlation. It is incumbent on every physician who works in a general medical hospital to study cases going through repeated surgery. Many of these patients are anxious for operations. I think there is such a thing as "focal suicide," as Menninger has described. Many of these patients have their pelvic organs removed, then a gall bladder operation, a duodenal drainage, etc. I think it is important to evaluate the psychogenic factors as far as possible. Many of these patients have abdomens reminding you of a geographical map, through repeated surgery.

Dr. H. Flanders Dunbar.—I want to thank the discussers for their comments on this paper, and particularly for their bringing out the place of psychiatry in general medicine. I think that Dr. Schwartz' suggestion ought perhaps to be stressed a little more; that we are sometimes inclined to accuse patients of malingering, to attack them because their illness serves a useful purpose. In the two cases cited in some detail the illness served a useful purpose, that is each patient obtained from it what we may call a secondary gain: one patient was protected from her husband by her illness, and one was getting increased attention from her husband because of it. The important point is that this is actually a secondary not a primary factor, and should never be the first point of attack. This is borne out by the fact that with the underlying emotional conflict cleared away, each patient relinquished voluntarily her "secondary illness gain." On the other hand, if one attacks first this secondary illness gain one succeeds simply in making the patient a little more sick, possibly at the same time altering the type of the symptomatology.

THE CASE OF DANTE GABRIEL ROSSETTI.

A Psychological Study of a Chloral Addict.

By LOUIS J. BRAGMAN, M. D.

The life of Dante Gabriel Rossetti, the greatest poet *and* painter since Michelangelo, was a darkening pilgrimage.[1] It was a gloomy journey in which he was beset all along the road by a quest for an ideal which existed only in his too fervid imagination, by a catastrophic marriage, by physical and mental illness and by the enslavement to a drug. His whole nature destined him to have a tragic background.[2] What was the doom that hung over him, threatening him with pain and decay?

If he were merely a psychopathic case and nothing else, says Waugh,[3] there would be no problem. Yet here and there he seemed to have transcended his handicaps in a fashion that admits of no glib explanation, despite the fact that there was a spiritual inadequacy, a sense of ill-organization about all that he attempted.

Perhaps the greatest factor contributing to a strange life of enjoyment and mental suffering which bordered on something like pathological extremes [4] hinged on his early environment. For there was in his family a distinct understanding that he was to be an artist. From the age of four, when he started drawing, his surroundings were such as to stimulate his precocious powers. His father, Gabriele, of Italian ancestry, was a poet, singer, artist and teacher. An eccentric, fantastic figure, a meticulous and absurd worshipper of Dante of the Inferno, a student of gnostics and astrology, with a religion of his own which included Swedenborg and the Brahmins, he " left his children with a mild and muddled awe in which to confront a very difficult world." [3] He died when his son was 26.

Dante's mother, who outlived him by three years, was devout, simple and dignified, with a warmth of feeling and a talent for making herself a heroine to her children. The family all possessed marked literary and artistic characteristics. The sisters were imbued with a deeply mystical sense of religion, Maria becoming a

nun and Christina an illustrious poetess. William is known as a writer and the biographer of his famous brother.

Born in 1828 into a home, then, in which artistic expression was a normal activity, Dante Gabriel, the second of four children, had, as far as records show, a happy childhood with no obvious conflicts at first, with understanding, sympathetic, helpful parents who let him work out his predestined career as an artist. It is significant, however, that he soon reversed his actual given name of Gabriel Charles Dante to avoid being confused with his father. One senses the beginning of friction between parent and son, particularly when he showed an early resentment against any knowledge of the author of the Inferno as a protest against his father's Dante-mania. In addition he manifested a general tendency to depart from his father's opinions regarding subjects on which they both spent much thought and feeling. Then paradoxically, at 17 he started his translations from Dante, and subsequently enmeshed himself considerably in Dantesque lore.

Although significant features of his more personal life seem to have been withheld from his biographies, it is quite definitely established that in his earliest days he was singularly pure-minded. On the threshold of manhood, with a virginal concept of woman and love, he aided in the organization of the Pre-Raphaelite Brotherhood, which had for its basis the idea that purity of mind and heart was necessary for the creation of good works. This circle of young men of untainted ambitions, to whom the sensual and the gross were to be tabooed, aimed to revive the mysticism of medieval art and sentiment. As a result it has been claimed that Dante created "the not quite natural ladies who languish in his pictures";[5] the woman with straight lines, slender, ethereal, unduly spiritual, supersensual, no longer expressing the free personality of the mature, complete female, but approximating the infantile, asexual habitus.[6]

For Dante was now showing a typical adolescent reaction, an escape from the realities of sexuality which was to dominate his art and his ways the rest of his life. Never actually an ascetic or a Puritan, yet he had no juvenile amours or flirtations. Woman was a great mystery to him, his one absorbing interest which he was endeavoring to sublimate by his quest for the eternal ideal Type. No poet or painter has ever given so much attention to

woman; woman (and flowers) were the only objects worth painting; and the same woman is in all his paintings. The spirit of woman was his one persistent occupation. At least half of his works represent an effort to express his idealization forcibly and permanently. He constantly exalted the mystery and the attraction and the physical beauty of woman: she was the mediating *logos* between the flesh and the spirit.[3]

This manifestly suppressed sensuous nature gained a firmer foothold on him as he grew older, and becoming highly-sexed he strayed into the byways of passion. The details of this side of him have been deliberately omitted from the records, yet he is reputed to have had wayward impulses. There were many rumors of misconduct, and he showed a belated sex-drive in which, although no profligate, his various amours were swift and unscrupulous, characterized by insolence of inception, energy of enjoyment and vagueness of termination.[1] He relished the adventures of promiscuity, and of grotesque encounters.[3] His poem *Jenny* reveals a sentimental interest in prostitution. It is a sermon, he says, and on a great world, to most men unknown. In the middle of life he plunged heavily into that world.

His faults and failings sexually, whatever they were, resulted from a lack of restraint by the ordinary social codes or views of morality. One consequence may have been a chronic ailment which suggests gonorrheal urethritis. His brother William wrote: "Towards the autumn of 1866 he became subject to a complaint (I do not care to define it) which required surgical treatment from time to time. The first instance was in August, 1868. He minded this not at all: and I have seen him resume painting within five minutes of one of the slight operations." Baum adds that William makes Dante's troubles in this regard "as mysterious and as fascinating as *My Uncle Toby's wound.*"

In fact Rossetti must have suffered intermittently, after his 40th year, from an urethral stricture which required frequent catheterization. Watts says[7]:

> He had for years been subject to a certain organic disturbance which, though under timely and skilful treatment it is not considered to be dangerous, will become full of peril, and will, indeed, end fatally if, in certain of its developments, it is neglected or treated unskilfully. In 1877 this ailment took a somewhat serious form. Yet our friend, the eminent surgeon, John Marshall, was not greatly alarmed, knowing that, should it occur that the

symptoms did take an aggravated turn, he had but to perform a surgical operation in order to give relief. This operation, however, was of great delicacy, and the aggravated symptoms necessitating it were apt to come on suddenly.

The incident in 1877 was due to delay in treatment, and took the form of a rupture of some internal blood vessels, after which he was ill two months. The entire condition, however, because of its benign nature, was but incidental to the larger picture of his disturbed constitution. For there were many other physical disorders which lent weight to his difficulties. He was apparently in good physical health to the age of 38, except for an episode at five, when he suddenly became weak in his legs. He was cared for by Benjamin Brodie, the eminent surgeon, and wore splints for three or four months. This may have been infantile paralysis, but details are lacking to substantiate this opinion. At 30 he suffered from neuralgia, perhaps of minor consequence. At 39 he began to have trouble with his eyes, and as his father was threatened with blindness in his closing years, Dante was for a long time apprehensive of his sight. Sunlight and artificial light became increasingly painful, producing sensations of giddiness and dazzling him. He was confused in dim light, was bothered by after-images, stumbled against objects and complained of a film as of curling smoke or effervescing champagne always before his eyes. Despite these symptoms, the oculists William Bowman and Bader said the eyes were not organically affected, attributing the trouble to weakness, overstrain and nervousness. He was never a martyr to personal suffering, says Caine,[8] calling attention to his neurasthenic attitude towards an innocent hemoptysis which manifested itself periodically. "He never failed to become convinced that he spat arterial blood, and that on each occasion he had received his death warrant." He told Caine that he was lacking in personal courage.

At 46 he was broken in mind and body. His nervous troubles seemed to eat out his vitality and to overthrow his robust spiritual constitution.[3] The death of his wife was the turning point.

He became engaged to Elizabeth Eleanor Siddal in 1851, falling in love with her on sight, She was 18, and soon became a model for him and his artist friends. Because of her illness from tuberculosis the marriage was persistently postponed for nine years. The long engagement was a considerable strain on him, and the

marriage turned into an imperfect partnership. Neither by habits nor by temperament was he well-adapted for married life. At the end of the first year a still-born child added to the strain, and his wife died a suicide from an over-dose of laudanum a year later. Waugh summarizes this tragedy, as affecting him, in an apt fashion:

> In the full vigor of youth and the exultation of his first love, he found himself brought up sharply by the icy breath of corruption and mortality in the being most dear to him. Love withered at his approach. At the very blossoming of his genius and reputation he was marrying a dying woman.

Of this he must have had a presentiment, for, as Benson [1] says:

> It is an inexplicable thing, especially in a man of profoundly superstitious nature, that Rossetti should, on his marriage-tour, have completed from an early design one of his most impressive drawings, "How They Met Themselves," where a lover and a lady, the latter drawn from Miss Siddal, are confronted in a dark woodland by the wraiths of themselves, a presage of death. There is a breathless horror about the picture in its completed form which testifies to the strength of the mood which originated it.

After her death he was not constantly mournful and dejected, because of his varied interests and energy of mind, yet he did have a pronounced sense of loss and of guilt. Caine says: "Rossetti had never ceased to reproach himself with his wife's death as an event that had been due in some degree to failure of duty on his part, or perhaps to something still graver." This refers perhaps to the implication that his neglect of her, his interest, well-known to her, in another woman, goaded her to take her life. Feeling that the poems (at that time unpublished) which he had written, were composed in neglect of her, he tried to atone by placing the manuscript in her grave. He waited seven and a half years to write again, disinterring the poems in 1869.

Four years after her death he became interested in spiritualism, wanting to prove, if possible, the continuance of life after death. Of this Watts-Dunton wrote, in Aylwin (a romance which gives an unrealistic picture of the life of Rossetti):

> Ask any man who has passionately loved a woman and lost her; ask him at what moment mysticism was forced upon him—at what moment he felt he must either accept a spiritualistic theory of the universe or go mad; ask him this, and he will tell you that it was at that moment when he first looked upon her as she lay dead, with corruption's foul fingers waiting to soil and stain.

But it was not his passionate love, for that had long since vanished. Rather it was his inner conscience, his feelings of blame that intensified his earlier predilections for metaphysics. And as his mysticism deepened, after 1862, his love for the fleshly things increased. Watts-Dunton says: "In the later years, the mystic temper dominated all his energies, leading him back to a spiritualization of the flesh, but not to asceticism." He affords in this regard another instance of the psychology of mysticism and sexuality, in which it would seem that spirituality and sensuousness are counterparts of an ecstatic nature. The task of his life, says Hueffer (quoted by Baum), was "the embodiment of mystical passion." Brooke [9] adds that his love of the supernatural, his mysticism and asceticism, are manifestations of the desire to restrain the appetite and sensual enjoyment in order to be able to contemplate more quietly and to realize more fully the spiritual ideas and the spiritual world in an impassioned imagination.

In 1869 his mysticism took the form of a definite delusional experience, as told by Scott:

> The circumstance I am now to relate, indicating the subversion of reason itself, it appears to me highly desirable to place on record. It is a problem for doctors and psychologists alike. Mounting the ascending road towards Bass, we observed a small bird, a chaffinch, exactly in our path. We advanced; it did not fly but remained quite still, continuing to do so till he stooped down and lifted it. He held it in his hand: it manifested no alarm. "What is the meaning of this?" I heard him say to himself, and I observed his hand was shaking with emotion. "Oh," I said, "put the pretty creature down again. It is strange certainly: it must be very young, perhaps one which escaped from a cage." "Nonsense!" was his reply, still speaking *sotto voce*, "You are always against me, Scott. I can tell you what it is, it is my wife, the spirit of my wife, the soul of her has taken this shape; something is going to happen to me."

Several years previously he began to be disturbed by insomnia. In *Sleepless Dream* he asks:

> ". . . . why does Sleep . . . .
> Tread softly round and gaze at me from far?"

And in the poem *Insomnia* he writes:

> "Thin are the night-skirts left behind
> By daybreak hours that onward creep,
> And thin, alas! the shred of sleep
> That wavers with the spirits' wind."

It will be shown shortly that he sought a dangerous method of wooing sleep, in 1868, by drinking heavily of whiskey and taking large quantities of chloral. For he was becoming highstrung, restless and melancholy, and he talked frequently of suicide. In 1869, when his nervousness was very much in evidence, he discussed the ethics of self-annihilation. Scott found him " more hypochondriacal than ever," and felt that his daily talk of suicide was undermining his courage.

In 1872 William said that his brother was now an actual monomaniac, talking wildly of conspiracies against him, saying that people were trying to decry and defame him, and that there was a widespread and carefully organized conspiracy to hound him out of society. Browning's *Fifine At the Fair* was an attack on him, he thought; and Lewis Carroll's *The Hunting of the Snark* was a pasquinade against him. These delusions seemed to have started simultaneously with an actual literary vicious criticism of his poems, in an article by Buchanan [10] who called him a decadent poet. Rossetti, said Buchanan, showed a needless voluptuousness and a morbid deviation from the healthy forms of life. There was nothing completely sane in his works, for they revealed a sickening desire to reproduce the sensual mood. *The House of Life* was a hotbed of nasty phrases, and some of the sonnets were stenched with one profuse sweat of animalism. In the light of present-day literature and art, the charm and power of his works subsists in their sensuous nature, but the vituperativeness of the diatribes was too much for his already tottering nervous system.

He was examined by Dr. Maudsley, the distinguished psychiatrist, who considered his mind unhinged. In 1874 the morbid delusions continued, and he became suspicious of his friends. The next year airy voices taunted him in terms of gross and unbearable obloquy, and cabmen rang their bells to annoy and insult him. He swallowed a large quantity of laudanum with suicidal intent, prompted by some hallucinations, following which he was in a lethal trance for two days. A hemiplegia which lasted for a half year was attributed to a " serous apoplexy " incident to the effects of the laudanum.

He continued deeply depressed and imagined he could paint no longer, although intervals of good health and important creative work followed to the end. In 1881 he had another attack of

paralysis in the right arm and leg which cleared up in a few weeks. The following year he was prostrated physically, was unable to take more than a few steps alone, and was half-blind. Dr. Harris believed he had some degree of brain-softening on account of his abuse of chloral. He died in April, 1882, of kidney disease accompanied by uremic manifestations.

Trombly [11] says that Rossetti "had gone down into the long, stuffy night of chloral." Dante himself confessed to Caine: "They say there is a skeleton in every cupboard, and that's mine; it is chloral." The hydrate of chloral was introduced as a *safe* drug for sleeplessness in 1869. About that time he was so greatly troubled by insomnia that he had to stop work, and a friend, W. J. Stillman,[12] recommended the soporific. It was to be prepared by dissolving 30 grains in three ounces of water, and one-half ounce of this mixture was to be taken for three nights in succession. Then he was to omit it for three nights. Instead, he took three doses at once, but was dissatisfied with the results, since it produced a short fit of profound stupor, after which his restlessness was worse than before, and he refused to try it again. Three months later he seemed to sleep better, but at a later date, on advice of a physician, he resumed its use. But of his own accord he increased the specified dose, and soon was having the prescription filled by several druggists at the same time, as the amount did not satisfy his craving. This he did, says Watts-Dunton, because his was a self-indulgent and impatient nature.

The average dose of chloral as a soporific is from five to fifteen grains. Gosse [13] says: "I am told that no case has been recorded in the annals of medicine in which one patient has taken so much, or even half as much chloral as Rossetti took." His initial dose is not recorded, but he gave way to it little by little, and his descent physically and mentally was inevitable. It was some years later, however, that it produced any sensible effects of an injurious nature. Subsequently it soared from fifty to one hundred and eighty grains a night. He said to Craine: "I have just taken 60 grains of chloral; in four hours I take 60 more, and in four hours after that yet another 60." When Caine asked if the dose did not increase from time to time, he replied: "It has not done so perceptibly in recent years. I judge I have taken more chloral than any man

whatever: Marshall says if I were put in a Turkish bath I should sweat it at every pore."

When he had attained his maximum dose his friends and druggists secretly diluted it to one-half or one-third when they were able. In 1876 he wrote: "I have been seeing Sir W. Jenner today in consultation with John Marshall, and they have prescribed me the awful ordeal of two nights entirely without chloral! This will be utter sleeplessness; and my only resource will be to try to read in bed." It was probably at this time that he tried mesmerism as a substitute for the drug, with good results. In September, 1876, he said that his own nights were much improved of late, that he had no pains in the limbs for some time past, "the mesmerism seeming to have carried them off," and that he took only about half or less than his customary chloral. But he could not get along without it. He wrote to Brown:

> The fact is that any man in my case must either do as I do, or cease from necessary occupation, which cannot be pursued in the day when the night is stripped of rest altogether.

In 1879 he was very ill for a week due to a more than commonly excessive dose of chloral. Subsequently morphine was substituted, at first by hypodermic injection, then by mouth. During this time he was delirious for many hours, and suffered physically many of the customary drug-withdrawal symptoms. Three or four mornings after the experiment he awoke calm in body and mind, but it was expedient to continue the narcotic until the end, which was quite near at hand.

The chronic chloral addict is reputed to manifest a train of physical and mental symptoms. A tolerance is soon acquired and the habitué resembles a victim of chronic alcoholism or morphinism. Various results have been described: cachexia, anemia, disturbances of the gastro-intestinal tract, loss of appetite, enfeeblement of the will, weakness of energy, persistent drowsiness, mental depression and other psychotic states, sometimes including delirium, confusion and hallucinatory and paranoid reactions.

Chloral worked insidious mischief on the nervous system of Rossetti. His brother felt that "chloral had little or no power over that part of his mind which was purely intellectual or inventive, but only over that other part which was emotional, and was applied to the construing of himself and his surroundings." It produced

in him a deep melancholy with weakness of will. He himself said that he did not get any real sleep from it, but only a trance-like state. It gave him unconsciousness without adequate repose or refreshment.

Caine said that his delusions grew out of the drug that "blighted half his life," and that it brought on occasional distrust of friends, fear of enemies, broken health and shattered nerves. He adds: "I believe that the drug by which he was enslaved caused what I may best characterize as intermittent waves of morbid suspiciousness as to the good faith of every individual, including his best, oldest and truest friends, as to whom the most inexplicable delusions would suddenly come, and as suddenly go."

Marshall told Caine that "chloral was merely a desperate attempt to cure his evils, not the cause of them." Quilter was apprehensive of "the fatal influence of chloral withering Rossetti's powers," and adds that "the most remarkable thing about chloral is that while it produces melancholy, suspiciousness and all kinds of illusions, it can leave the executive functions untouched." And Marks,[14] similarly believing that the quality of his work was not interfered with, for there was no mental deterioration, writes:

> Chloral seems to have made Rossetti in his personal relationships a victim of morbid and causeless suspicion of his friends—those who were closest to him. Unquestionably his addiction made him an object of pity to those who loved him. . . . . The loquacity of the foolish boastfulness about the enormously large quantities of chloral which he took, his imaginary literary and personal enemies, his increasing and distrustful irresolution, his occasional and bitter violence of temper, were all gifts from the great and only enemy of Rossetti's life—death-dealing chloral.

There are many aspects of his personality which imply that he had an unstable temperament. Benson [1] suggests that his might have been affected, decadent, fantastic figure of a dreamer. Of a seclusive makeup, he shrank from the ordinary amusements of life. He had a too active and an unappeased imagination. Waugh considers him a tragic and a baffled figure. His sonnet-sequence, *The House of Life,* which is a record of his intellectual and emotional experiences, shows his disillusionment and melancholy. His poems for the most part express poignant passion, the tragedies of blighted love, and the blind recklessness that follows.

To Rossetti, as has been said, woman was the most compelling of the manifest forms of beauty. His wife typified his early sim-

plicity and interest in cloistral purity; Fanny Schott, to whom he turned as the beauty and strength of his wife declined, brought out his voluptuous side; and Jane Morris stood for the haunting melancholy and frustration at the close of his career.[3] Hueffer, describing his wonderfully deep conception of the female type of woman in her relation to man, considers this the keynote to his creative power.

Symons,[5] after stressing the personal tragedy in the life of Rossetti, finds that he lived a life of unreality:

> Rossetti, with all his keen practical intelligence, was never wholly awake, had never gone outside that House of Dreams in which only the real things were the things of the imagination . . . . Rossetti as well as his associates were phantasts, looking for an ideal which existed only as in their imagination. . . . . He died of too much dreaming, of too passionate a desire after beauty, which at last literally took his sleep from him, and set him wandering about the streets at night, and closed him in finally upon a drugged atmosphere of hallucinations. He was not powerful enough to turn out the guests of his brain, when they had come to haunt him like phantoms.

Finally, says Symons, the great artist became melancholy, and his work expressed this state of mind. "The pictures of his last years [and probably the Sphinx Sonnets] are strange documents of the degeneration of his mind." Baum felt that "without the dual outlet of poetry the man would have gone mad." But mad he truly can be considered, conditioned as he was by his earlier training, his marriage tragedy, his memories and anxieties and conflicts following the loss of his wife, his distress over his failing eyesight and the pain and discomfort of his other physical disturbances, his insufferable insomnia and his chloral enchantment. For, as Baum concludes:

> To preserve the balance of sanity in what can hardly ever be regarded as quite sane or "normal" is the almost impossible problem of pure mysticism. The fusion is for those only who can burn continually with the hard gem-like flame; for the rest the solution is always on the verge of decomposing into its components. Rossetti, with all his fine qualities, was too weak a vessel to hold together, in the tremendous heat of this double fire.

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THE BLOOD FAT IODINE NUMBER.

Presenting the Experimental Basis for an Exact Differential Diagnostic Procedure.

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The high relative percentages of fatty substances in brain and nerve compared to other organs point to the extreme probability that any disturbance of function of brain or nerve should be accompanied by some disturbance of fat metabolism. There is also a rather striking parallelism between the theory of nerve physiology and the hypotheses of fat metabolism. In broad terms both postulate the existence of a mechanism which upon being placed in motion by a suitable stimulus operates to release to the use of the organism certain reserve stores of energy.

That the fats are primarily involved in these releases of commonly called nervous or emotional energy has been amply demonstrated. Cats put under emotional stress by exposure to a barking dog show uniformly striking increases in the concentration of fat in the blood.[1] Groups of mental patients in states of emotional exultation show significantly higher blood fat levels than comparable groups in states of apathy.[2] A group of mental patients exhibiting more marked reactions to external psychological stimuli showed higher levels of blood fats than a comparable group showing lesser reactions to such stimuli.[3] A group of stuporous apathetic catatonic patients exhibiting some slight reaction to a definite psychological stimulus showed immediately after the application of the stimulus significantly higher levels of the unsaturated fats of the blood and higher iodine numbers than a comparable group that exhibited no reaction to the same stimulus.[3]

The first step of the process by which the fat reserves are drawn upon consists in the desaturation in the liver of the saturated fats from the tissue depots. The iodine number of the blood fat is therefore an index of the extent to which these reserves are being called into use by the organism.

I have reported elsewhere the finding that in dementia præcox the quantity of fat in the blood is significantly lower than normal [3] and that continuous feeding of a high fat diet for as long as seven months failed to elevate these levels to any extent or to produce any clinical change in the mental symptoms of these patients.[4] Since these findings have been reported six cases of manic psychosis have been maintained on a high fat diet for a period of six weeks. Two manic types that were in partial remission during the period showed no significant elevation of the blood fats nor any noteworthy clinical change. Four cases including three manic and one depressive types which were in the more active phase of the manic cycle all showed distinct elevations of the blood fats and became markedly more hyperactive.

During the course of these investigations 107 determinations of the blood fat iodine number were made in 17 cases of schizophrenia and 32 determinations in seven cases of manic psychosis. The data obtained from the two groups are comparable statistically as both groups were on the same diet and all specimens were taken before breakfast after an over-night fasting period. All determinations were carried out by the same technic the limits of error of which have been elsewhere recorded.[3] The data will be analyzed according to customary statistical practice when more than one test has been taken from any given individual. The individual will first be considered as the unit, the value in each case being the value of the first determination obtained. The test will next be considered as the unit and finally the individual averages will be considered.

I. *The Individual as the Unit.*—Weight of data: 17 cases of schizophrenia, seven cases of manic psychosis. Schizophrenia mean iodine number 107; standard deviation ± 11.8; probable error of mean ± 2.9. Manic psychosis mean iodine number 126; standard deviation ± 11.8; probable error of mean ± 4.6. The difference between means is 3.5 times the standard error of the difference and therefore statistically significant. 76 per cent of the schizophrenia values fall below the manic lower limit. 86 per cent of the manic values fall above the schizophrenia upper limit. 82 per cent of the schizophrenia values are below the manic mean. 86 per cent of the manic values are above the schizophrenia mean. If the iodine number 120 had been taken as the differential point and all values

above 120 considered manic, all below schizophrenia, the manic diagnoses so established would have agreed with the clinical diagnoses 86 per cent, the schizophrenia diagnoses 82 per cent of the times.

II. *The Test as the Unit.*—Weight of data: 107 tests from schizophrenia, 32 tests from manic psychosis. Schizophrenia mean iodine number 115; standard deviation ± 16.4; probable error of mean ± 1.6. Manic psychosis mean iodine number 127; standard deviation ± 18.6; probable error of mean ± 3.3. The difference between means is 3.3 times the standard error of the difference and therefore statistically significant. 36 per cent of the schizophrenia values are below the lower manic limit. 34 per cent of the manic values are above the upper schizophrenia limit. 76 per cent of the schizophrenia values are below the manic mean. 69 per cent of the manic values are above the schizophrenia mean. If the iodine number 120 had been taken as the differential point the manic diagnoses so established would have agreed with the clinical diagnoses 69 per cent, the schizophrenia diagnoses 66 per cent of the times.

III. *The Individual Average as the Unit.*—Weight of data: 16 cases of schizophrenia, seven cases of manic psychosis.

Schizophrenia mean iodine number 114; standard deviation ± 8.5; probable error of mean ± 2.1. Manic psychosis mean iodine number 128; standard deviation ± 7.1; probable error of mean ± 2.8. The difference between means is 4.0 times the standard error of the difference and therefore statistically significant. 87 per cent of the schizophrenia values fall below the lower manic limit. 85 per cent of the manic values fall above the upper schizophrenia limit. 94 per cent of the schizophrenia values fall below the manic mean. 100 per cent of the manic values fall above the schizophrenia mean. If the iodine number 122 had been taken as the differential point and all values above 122 considered as manic all below as schizophrenia, the manic diagnoses so established would have agreed with the clinical diagnoses 85 per cent, the schizophrenia diagnoses 87 per cent of the times.

CONCLUSION.

There is a statistically significant difference between the blood fat iodine numbers in schizophrenia and manic depressive psychosis.

The difference is most marked when a number of tests are obtained from the same individual and the individual average considered as the unit. The determination of the blood fat iodine number would seem to be a valuable procedure for the purpose of classifying cases over which there might be disagreement of opinion or the diagnosis be in any doubt.

Acknowledgment of assistance and cooperation in carrying out the work reported is due to Dr. Chester L. Carlisle, clinical director, and Dr. Marcus C. Terry, pathologist, under whose supervision the work was done; also to Dr. R. E. Toms, Dr. J. W. Wills, Dr. R. H. Leece and Dr. R. O'Neil, ward surgeons in charge of the patients; and to Mrs. Hessie E. Waldsen and Miss Faye Krall, dietitians, at the U. S. Veterans' Administration Facility, Palo Alto, California.

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ANTICIPATIONS AND CORROBORATIONS OF THE FREUDIAN CONCEPTS FROM NON-ANALYTIC SOURCES.*

By A. A. BRILL, Ph. B., M. D.

Ever since psychoanalysis began to attract the attention of the scientific world a number of hostile critics have maintained that those Freudian views, which they consider sound and logical, were discovered by others or were known before Freud came on the scene. As Freud's discoveries touch the whole gamut of human feelings, it would indeed be strange if one should not encounter similar views expressed here and there by others. But deeper investigation readily shows that whereas some have anticipated something, some fraction of his theories, none has ever expressed one of his basic principles. Janet is the only one who actually claimed that Freud usurped some of his views, but this has been amply disproved by Freud, Jones, and others.[1] Freud, himself, has always given full credit for any idea that he has adopted from others. There are numerous references in his works to the great part played by Breuer in the beginning of his scientific career, and when his attention was called to the fact that someone had anticipated any of his views, he never failed to acknowledge them. One should read, for example, his gracious acknowledgment to Schopenhauer of the idea of repression, when Rank pointed it out to him. But when one reads this reference in "The World as Will and Idea,"[2] one doubts whether Rank would have noticed it if he had not been at the time thoroughly impressed by Freud's theory of repression. In the same manner Freud speaks of Nietzsche, who intuitively sensed some of the theories laboriously

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

[1] Freud: History of the psychoanalytic movement. Translated by Brill, p. 24, Journal of Nervous and Mental Diseases, Monograph Series, 1916; and Die Medezin der Gegenwart in Selbstdarstellung, pp. 4 and 9, Felix Meiner, Leipzig.

[2] Rank: Zentralblatt für Psychoanalyse, 1: 69, 1911.

worked out by Freud on the basis of clinical material. Freud claims that at that time he had not read the works of these philosophers.[3] Similarly, in speaking of his dream theories he states: "The most characteristic and significant part of my dream theory, namely, the reduction of dream distortion to an inner conflict, to a sort of inner dishonesty, I found later in an author to whom medicine but not philosophy was unknown. I refer to the engineer, J. Popper, who wrote under the pseudonym of Lynkeus." But reading Popper's passages in the light of the enormous work of "The Interpretation of Dreams" one cannot help admiring Freud's liberality. Indeed, Freud's friends have always felt that he was too generous in this respect. It would be a laborious task, quite impossible here, to go further into this subject. Suffice it to say that both opponents and friends have discovered many similarities between Freud's theories and those of others, and only a few years ago a friendly author, Dr. Dorer,[4] in an interesting book on the historical foundations of psychoanalysis, traced all of Professor Freud's theories to the direct influence of his former teachers. This work lacks the familiar and affective touch of his pupil, Fritz Wittels,[5] but it is interesting and useful as a summary of similar works hitherto attempted by others.

It is interesting to note that none of Freud's opponents have ever attempted to attribute any of his sexual theories to anyone else. All of them blame him and him alone for having injected sex into the neuroses. Yet, Freud, himself, maintains that this cognition was inspired in him through casual remarks uttered at different times by three of his teachers; namely, Breuer, Charcot, and Chrobak.[6] "But I did not understand at that time," he states, "what these authorities meant; they have told me more than they themselves knew, or were prepared to acknowledge. What I heard from them slumbered ineffectually within me until it casually emerged, seemingly as an original cognition, during my investigations of the cathartic method."[7] As a matter of fact, the association

[3] Die Medezin der Gegenwart, etc., *l. c.*, p. 43.

[4] Historische Gründlagen der Psychoanalyse. Felix Meiner, Leipzig, 1932. Reviewed in the Journal of Nervous and Mental Diseases, p. 581, May 1935.

[5] "Freud and his times."

[6] "History of the psychoanalytic movement," p. 6.

[7] Die Medezin der Gegenwart, etc., *l. c.*, p. 13.

of these remarks with his sexual theories had not become conscious to him until he wrote the history of the psychoanalytic movement in 1914. It seems, therefore, that even his great dictum, "In a normal *vita sexualis* no neurosis is possible," a statement which arrayed the whole medical world against him, that this, too, was not altogether original. Indeed, some time later Havelock Ellis called attention to the fact that Freud's reduction of hysteria to sex can be traced back to the oldest period of medicine, to Plato's matrix theory, as expressed in his *Timæus*.

Freud tells us that the character of a person represents the sum total of his past impressions, and we who worked with him know that an impression, whether in the form of a sensation or an idea, is never lost. Bearing this in mind, we can agree with those of his opponents, who claim that some of Freud's views have been expressed by others, and with his pupils and friends like Wittels, Dorer and others, who trace some of Freud's ideology to his former teachers. No doubt of that, but we add that Freud created a great system out of these isolated fragments. By coördinating all his knowledge, from his early life, school, teachers, and last but not least his own empirical knowledge, he developed the flexible science of psychoanalysis, an achievement to which nothing in the history of medicine can be compared.

These remarks are to serve as a preliminary to what I wish to bring before you. A few years ago I purchased a work on Hippocrates,[8] which I read with much pleasure and interest. Beyond the hackneyed expression "Hippocrates is the father of modern medicine," I hardly knew anything about this great personage. The more I read about Hippocrates, the more fascinated I became; his sayings and precepts were so stimulating, so fresh, and seemed so timely that I forgot for the time that they were uttered by one who died in 346 B. C. Moreover, I was particularly intrigued when I read in the fifth chapter of this book a description of a psychoanalysis made by Hippocrates in the most modern Freudian manner. According to this version, King Perdicas of Macedonia suffered from a peculiar malady, which no one could properly diagnose. It was thought to be consumption or some other organic disease, but neither the symptoms nor the reactions to the treat-

[8] Baisette: "Hippocrates, his life and doctrines." German translation by Bruno Hepner: Hippokrates, Verlag, Stuttgart, 1932.

ment confirmed the diagnosis. In his distress the King sent for Hippocrates, whose reputation as a great physician was known throughout Greece. When Hippocrates came to Macedonia he found that Euryphon, the well-known leader of the Cnidian School, the rival of the Coan School headed by Hippocrates, had arrived ahead of him and had charge of the case. Both of these schools of medicine flourished during the time of Hippocrates, both of them were highly regarded and both of them had the same origin: they were both Asclepiades. That Cos had become famous is altogether due to the person of Hippocrates. Dr. Müch in his penetrating work [9] comparing the two schools says that Cnidos equals science, while Cos equals art. Cnidos started from the particular and attempted to deduct laws from these individual details to be applied later in similar circumscribed area, whereas Cos started from the general and strove to formulate rules but did not thereupon treat the individual symptoms in the same manner in every case, on the contrary it treated the individual case in entirely different ways. Euryphon thus pursued the methods of treatment as expressed in the Cnidian Sentences, but after two months of unsuccessful treatment he was displaced by Hippocrates. The latter discarded all the salves and drugs ordered by his predecessor and set out to investigate this mysterious malady in a more general way, starting in by gaining the King's confidence. He spent much time with his patient, took walks with him, and questioned him minutely about his feelings, noted his memory disturbances, his dreams, and informed himself about his relations to his father, Alexander the Rich. As to that, the patient claimed that he had always been very attached to his father, but could not explain a dream in which he had seen his father surrounded by thousands of slaves. When he wished to approach, a lance, which was stuck in the ground, began to swing to and fro, and kept him away from his father. It was impossible to pull this lance out of the ground, and his father vainly extended his arms to him. This dream repeated itself with some modifications; sometimes, the father was alone and sometimes with his concubine, Phila. On further analysis Hippocrates found that Phila, who was slightly older than Perdicas, had been his playmate until she was 14, when she became his father's favorite. Phila was only 19 when Alexander

[9] Hippocrates der Grosse, Hippocrat-Verlag Stuttgart, 1926.

died, and while she remained in the royal palace, Perdicas saw little of her. The investigation continued in a typical analytical manner. From the symptoms, dreams, and sexual behavior of his patient, Hippocrates decided that Perdicas suffered from a psychic disturbance due to a secret love for Phila. When he told his findings to the King, the latter reacted like psychoneurotics of today. He at first refused to believe it, and became quite excited over it, but within a few days he realized that Hippocrates was right; his symptoms disappeared, and he married the lady.

This version, of which I have presented a very small fragment, impressed me as too nice to be true, but it was not until I heard of it from two laymen, one of whom suspected that Freud might have gotten his whole psychoanalytic system from Hippocrates, that I began to investigate it. According to Baisette, who quotes from Dr. Edouard Auber: "All that is known of Hippocrates, his origin and his life, is found in Soranus of Ephesus, in Suidas and Histemachos, his biographers, or in Appolonius of Cittium, in Damascius and Palladius, who continued his work; or finally in the chronicles of antiquity, which swarmed with episodes and features of his life." Any effort to follow up these and other authorities carries one into a labyrinth of mythical uncertainties, from which it is hard to escape. Everything about Hippocrates is shrouded in mystery. Like so many others of equal, or similar, rank his very existence has been doubted. As to the Perdicas episode, from the numerous references to it one gains the impression that something like it must have happened. Those historians who speak of it all refer to Soranus, who was born in Cos the year Hippocrates is supposed to have died. Dr. Francis Clifton in "The Life of Hippocrates" gives the following account of this episode from Soranus: "He (Hippocrates), practised Physik in all parts of Greece, and was so much admired for his divine skill, as to be sent for publickly with Euryphon (a man superior to him in years) to Perdicas, King of Macedonia, who was then thought to be consumptive; but Hippocrates discovered it to be a disease of the mind. For upon the death of his father, Alexander, he fell in love with Phila, his father's mistress; which Hippocrates, easily discovering it by the mighty change her presence wrought upon him, acquainted him with, and so the disease was cured, and the King recovered."

This account is practically an exact reproduction from the Latin of Marco Fabio Calvo's *Hippocrates Vita de Sorani Historus,* published in 1525. Littré, Houdart and other historians express some doubts about this episode, which they claim actually occurred with slight modifications, but not to Hippocrates and Perdicas, but to Erasistratus, a pupil of Hippocrates and Antiochus, son of Selenus Nicator, King of Syria.[10] Not to continue this subject any further, I feel that something like it might have happened to Hippocrates or to Erasistratus or to both. What is most interesting to us is that such a story was discussed before the Christian Era. In other words, psychogenesis and the rôle of sex in the neuroses (in the Freudian sense) were known some hundreds of years B. C. That Hippocrates might have treated Perdicas in the manner described by Baisette seems quite plausible when one studies the life and works of this great personage, especially as given by Baisette and other authors.[11] Baisette claims that the events described in his work are based on tradition and on the Hippocratic *Corpus,* that all words and citations are faithful reproductions of Hippocrates' works, that nothing has been added. Judging by this and other works one readily agrees with W. H. S. Jones, the scholarly translator of Hippocrates,[12] who states "The Hippocrates of tradition and the Hippocrates of the commentators may well be left buried in obscurity and uncertainty. What we do know, what must be our foundation stone, is that certain treatises in the *Corpus* are impressed with the marks of outstanding genius, who inherited much, and bequeathed much more. He stands for science and against superstition and hypothetical philosophy." To deny his existence in face of the fact that the Hippocratic oath has been impressed on every medical neophite for over two thousand years would be as foolish as to deny the existence of Jesus whose daily prayer has been recited by Christians for about 1930 years.

If we cull from those who wrote about Hippocrates and from his own expressions and precepts, we may say that Hippocrates was the first physician who disregarded all the cant and superstition of his time and confined all his observations to the patient instead

[10] Sigerist: "The Great Doctors," p. 49.

[11] *Cf.* Hans Müch: Hippocrates der Grosse, Hippokrates-Verlag Stuttgart, 1926.

[12] Vol. I, p. XXX, of the Loeb Classics, Heinemann, 1922.

of to the symptoms. He was a painstaking recorder of all morbid manifestations, which he considered as a surface indication of a struggle between the patient and the disease. To quote Haggard, " Having recorded the symptoms of the patient, Hippocrates after wide experience was able to define and classify diseases. Thus, he founded the art of diagnosis and prognosis. But throughout all his work his attention was centered upon the patient, not merely upon his symptoms; he dealt with the man as well as with the disease. He kept in his practice the balanced relationship between science and art which was to be the distinguishing quality of all great clinicians in all ages." [13] The above quotation, which I consider an excellent general summary of Hippocrates' achievements reminds us of the psychoanalytic approach to the problems of the neuroses. Freud, too, goes from the general to the specific. No two cases of hysteria or schizophrenia are alike, each case has its specific determinants. That the neurotic symptoms are the result of a struggle or a conflict between the patient's ego and something incompatible with it need not be repeated to anyone conversant with Freud's theories of the neuroses. We know, indeed, that the neurotic or psychotic struggle is in itself an effort at adjustment, or in the Hippocratic sense an effort to reestablish the former equilibrium or harmony.

According to Hippocrates there is a certain force, the *physis; i.e.*, nature or constitution, which maintains the proper proportion of the mixture of the humors and any disturbance of this *physis* produces a disharmony; that is to say, a disease. Freud, too, lays stress on the constitutional factor in the production of the neurosis without however telling us the nature thereof. Moreover, psychoanalysis has often been designated more as an art than a science.

As far as I could find, Hippocrates was the first physician to recognize the brain as the most powerful organ of the human body. He said that when it is healthy it interprets for us all phenomena of the air. Eyes, ears, tongue, hands and feet act in accordance with the discernment of the brain. He stated that " to consciousness the brain is the messenger " and " the brain is the interpreter of consciousness." [14] Such statements show that the father of

[13] Haggard, H. W.: Mystery, magic, and medicine, p. 33. Doubleday, Doran and Co., New York, 1933.

[14] Vol. 2, p. 179, of the Loeb Classics.

medicine was well versed in psychiatry and neurology despite the fact that he knew little, if any, anatomy and physiology.

It is also interesting to note that Hippocrates esteemed the dream as a valuable psychic phenomenon. In his works, he speaks of dreams and distinguishes dreams which are of no interest to the physician from those which indicate a definite disturbance of functions. In his excellent work on the epidemic diseases he describes typical anxiety dreams.

Hippocrates also recognized the importance of sex in health and disease. In his studies of reproduction, he frankly and expertly describes the functions of the sexual act, and various anomalies of the orgasm in both sexes. He also states that those women who have sexual intercourse enjoy better health than those who abstain from it. That he was well aware of the dangers of the transference mechanism in medical practice is shown by the fact that in the Hippocratic oath he enjoins on him who is entering the medical profession to keep himself from the seduction of men, children, and women, be they slaves or free persons. To my knowledge no teacher of medicine since Hippocrates has had the insight or perhaps the courage to deal with this subject until Freud, sensing its great force in medical practice and its importance in social life, frankly and expertly discusses it with his students.

From the material just cited, I hope that I have shown you that Hippocrates possessed the expert knowledge requisite for such an analysis as that described by Baisette. Whether or not someone else actually accomplished it is of little significance; *Si non è vero è ben trovato*, says the Italian. If it is not true, it is nevertheless a good story and shows that such ideas existed about 2000 years before Freud came on the scene.

Did Freud get his ideas from Hippocrates? As far as I recall, Hippocrates is mentioned only once in Freud's "Interpretation of Dreams." I am sure that Freud never made any special study of Hippocrates. That there is a striking resemblance between Freud's approach to the neuroses and Hippocrates' approach to medicine in general only demonstrates the popular saying that great minds run in the same, or might I say similar, channels. Great personages owe their greatness to their independence. They do not have to copy from others. To be sure "everything has already been here, there is nothing new under the sun" (in the words of

Koheleth). New ideas are nothing but new combination and permutations of old ideas bolstered occasionally by some new experience. That Freud should have become interested in the subjects of constitution, dreams, and sex which similarly absorbed Hippocrates and probably many others, thousands of years before is not so strange when we consider that Freud was the first physician to give of his time unstintingly to his patients, he is a great observer, a great genius who has had the courage to record what he actually found, which even his opponents must now concede.

There is much more that I could tell about the resemblance of Freudism to Hippocratism, but in the memorable words of the Father of Medicine *"Ars longa, vita brevis."*

THE NEYMANN-KOHLSTEDT DIAGNOSTIC TEST FOR INTROVERSION-EXTROVERSION AS APPLIED TO DELINQUENTS.

By M. J. PESCOR, M. D.,
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This study was initiated to determine the value of the Neymann-Kohlstedt Diagnostic Test for Introversion-Extroversion as an aid in eliciting introversive and extroversive traits among delinquents. Such an instrument, if proven efficient, not only saves time in conducting an examination, but also systematizes the findings, thereby facilitating statistical research.

The test comprises 50 statements, each followed by the words "Yes" and "No." The subject is instructed to note his personal like or dislike for each particular statement by underlining either "Yes" or "No," as the case may be. Extrovert responses are recorded as plus and introvert responses as minus. The final score is obtained by the algebraic addition of the plus and minus answers. For a fuller descriptive account the reader is referred to the article written by the originators of the test, and appearing in the Journal of Abnormal and Social Psychology.[1]

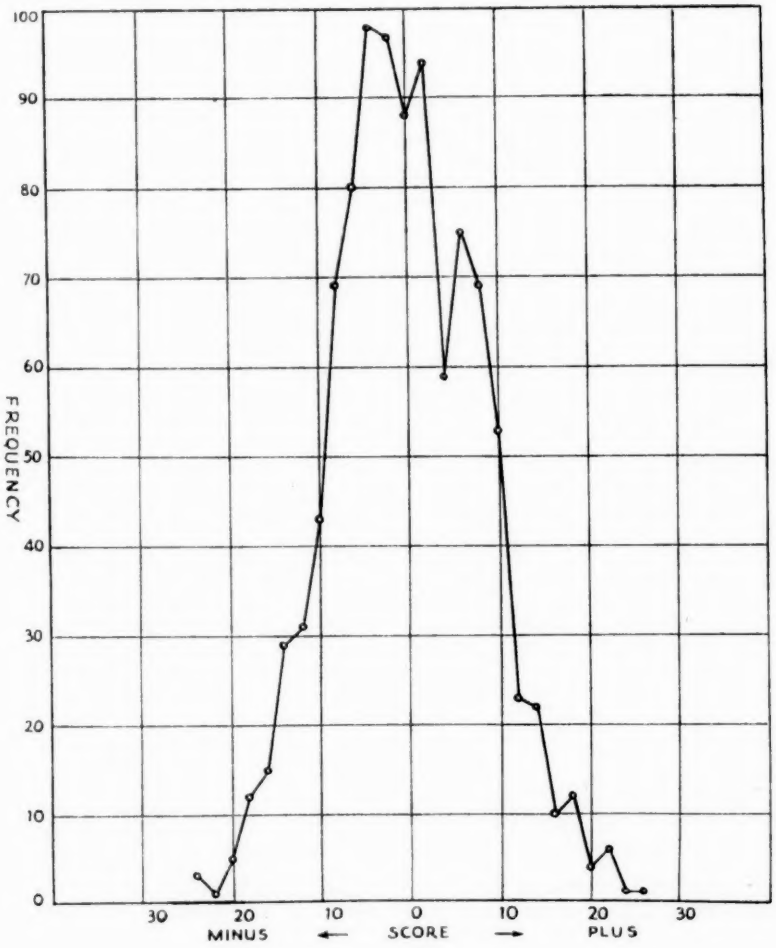
The material consists of examinations made on 1000 individuals admitted to the United States Northeastern Penitentiary from February 20, 1934, to July 15, 1935. The group is fairly representative of the general prison population, excluding only those who were unable to take the test because of language difficulty, unwillingness to cooperate or inability to comprehend the directions because of low intelligence. In all 464 individuals were thus excluded.

The selected inmates were drawn almost entirely from the northeastern section of the United States, including all of New England, New York, New Jersey, Delaware, Maryland, Pennsylvania and part of Ohio and West Virginia. They range in ages from 18 to 76, with an average age of 33.06. Nordics comprise 45.5 per cent of the group, Latins 21 per cent, Semitics 20.5 per cent, and the remaining 13 per cent include Slavs, negroes and miscellaneous

races. From an educational standpoint 57.5 per cent attended grade school only, 34 per cent attended high school and 8.5 per cent attended college. Unskilled laborers constitute 40 per cent of the group, skilled 27.5 per cent and clerical or professional 32.5 per cent. Violation of the National Currency Act (passing and possession of counterfeit money) claimed the most victims, 36.3 per cent; violation of the Internal Revenue Act (possession of untaxed liquor) is next in order, accounting for 16.6 per cent of the group. Violation of the Harrison Act (narcotic law) snared 8.4 per cent, and violation of the Dyer Act (transporting stolen automobiles from State to State) 4.9 per cent. The remaining 33.8 per cent of the group were convicted of sundry offenses, such as mail fraud, robbery, forgery, embezzlement, etc. Those convicted for the first time account for 58.5 per cent of the group, and recidivists for 41.5 per cent.

As a primary procedure, a frequency curve depicting the distribution of scores made by the thousand subjects was plotted. This is presented in Graph I. It will be noted that the curve shows practically a normal bell-shaped type of distribution with the median at zero, the 10 percentile at minus ten and the 90 percentile at plus ten. This is contrary to the findings in the original work of Neymann and Kohlstedt, who demonstrated a bimodal frequency curve for both psychotic and normal individuals. In other words, their subjects tended to group themselves "into a predominance of introvertive and extrovertive traits with comparatively few borderline cases."[1] Neymann, in a subsequent study[2] again reported a bimodal curve of distribution. The delinquents, on the other hand, do not differentiate themselves in such a manner, but tend to fall into the central or borderline zone. The significance of this finding is problematical. It would appear that neutroverts are more apt to get into conflicts with the law than either extroverts or introverts.

The next step was to determine the relative likes and dislikes of the thousand inmates by compiling their reactions to the fifty statements contained in the test. The majority, that is 60 per cent or more, like to be calm and collected, to think a great deal, to plan out work before beginning it, to be exceedingly careful in meeting people, to avoid trouble rather than face it, to keep quiet when out in company, to think a great deal before deciding any-



Minus = Introvertive tendency.
Plus = Extrovertive tendency.

GRAPH I.—Distribution of scores made by 1000 inmates of the United States Northeastern Penitentiary on the Neymann-Kohlstedt diagnostic test for introversion-extroversion.

thing, to spend a vacation at a quiet place rather than a lively resort, to meditate and think about themselves, to distrust people they have just met until they get better acquainted, to be able to express their keenest feelings, to work in the presence of many people, to think of life in terms of pleasure, to have a great deal of confidence in others, to have people watch them do things that they do very well, and to study others rather than themselves.

The majority, 60 per cent or more, do not like to attend social gatherings just to be with people, to act on suggestions quickly rather than stopping to think, to quit a tiresome task, to have people watch them, to speak in public, to be leaders at a social affair, to change their opinions easily when formed, to change from one type of work to another frequently, to act on the spur of the moment, to accept suggestions rather than working them out for themselves, to keep a personal diary, to rewrite social letters, to believe that rumors are important, to let themselves go when angry, to do the same kind of work all the time, to indulge in quiet rather than exciting amusements, to read about rather than do a thing, to do the things they day-dream about, to be by themselves a great deal, to dream or think about the future, or to indulge in reverie.

Two groups were next selected for a more intensive comparative study. The first consisted of the 132 extrovert individuals who made a score of plus 10 or more on the test; and the second was composed of the 139 introvert individuals who made a score of minus 10 or more (minus). Comparisons were made on the basis of age, race, mental status, education, occupation, type of crime committed, recidivism, disrupted homes, that is death of one or both parents or separation of parents, body types, intelligence, emotional status as determined by the Woodworth Personal Data Sheet [3] and also by clinical observation, sick line attendance, disciplinary action and finally psychiatric classification.

A disappointing similarity between the two groups was disclosed. The average age was found to be 33.4 years for the introverts and 32.8 years for the extroverts. Racial origin showed some difference in that there were twice as many of southern European descent in the introvert group as there were in the extrovert, and conversely twice as many of Semitic origin in the extrovert class as there were in the introvert. Other races were fairly equally distributed. Single men indicated a greater leaning toward extroversion than married

men by a margin of 10.3 per cent. The disparity is too slight to draw the obvious inference.

Education and occupation revealed no significant dissimilarities of distribution. Likewise, the type of crime committed apparently has very little relationship to introversion or extroversion except that 7.2 per cent of the introverts were convicted of forging federal obligations, but none of the extroverts were convicted of the same crime. Incidentally, the introvert forgers constituted 76.9 per cent of the total number of forgers in the institution. Recidivists were about equally distributed between the two groups. About 6 per cent more introverts than extroverts gave a history of homes broken up by death, divorce or separation of parents.

Judging from the results body type does not condition introversive or extroversive tendencies. Only 5.7 per cent more of the individuals with a pyknic body build appeared in the extrovert group than in the introvert group. The number of asthenic individuals was practically equal in the two groups, and the athletic type favored the introvert class by a margin of 6.1 per cent. Intelligence apparently has very little influence, the extroverts having an average mental age of 15 years 2 months and the introverts 15 years 3 months. This agrees with Neymann's conclusion, "intelligence and introversion do not coincide." [2]

Emotional status as determined by the Woodworth Personal Data Sheet disclosed that extroverts responded with an average of 12.9 incorrect answers as against 13.5 for the introverts. This is somewhat higher than the average of 10.8 incorrect responses given by the general institutional population, indicating a slight but equal tendency toward emotional instability among extroverts and introverts. Observational impressions yielded an almost equal number of emotionally unstable individuals in the two groups. Sick line attendance, which is often a good indicator of the emotional status of an individual revealed practically no difference between the two classes, but when compared with the general average attendance of all inmates, it was found that introverts and extroverts appeared on sick line twice as frequently as the average prisoner.

According to disciplinary reports, which is another criterion of adjustment, twice as many extroverts were subjected to disciplinary measures as there were introverts. Compared with the general average extroverts showed a greater propensity for violating the

rules of the institution by a margin of 11.3 per cent. On the other hand introverts fell below the average by 2.4 per cent. This is a logical finding, since an introvert tends to mind his own affairs, whereas the typical extrovert does not believe in the old adage that "silence is a virtue" in prison as well as elsewhere.

The psychiatric classification failed to disclose any marked differentiation between the two groups. The diagnosis of psychopathic personality occurred 9 per cent more frequently among extroverts than among introverts, and the diagnosis of psychoneurosis occurred 4 per cent less frequently. Both groups, however, revealed a greater proportion of individuals classified as psychopathic personalities than the general average for the inmate population, the extroverts to the extent of 15 per cent above the average and the introverts 6 per cent above the average. The feebleminded were, for the most part, excluded from this study because of inability to cooperate on the test, hence no statistics are available. There were no frankly psychotic individuals in either group.

An effort was made to establish the reliability of the test by reclassifying the two special groups on the basis of history, clinical observation and general behavior in the institution. In the extrovert group the test results were confirmed in 78.2 per cent of the cases; considered doubtful in 6.1 per cent, and reversed in 15.7 per cent, *i. e.*, 15.7 per cent were adjudged as definite introverts. In the introvert group the findings were confirmed in 59 per cent of the cases; considered doubtful in 19.7 per cent, and reversed in 21.3 per cent; *i. e.*, 21.3 per cent were classified as definite extroverts. It would appear that the test is more selective for extroverts than for introverts.

As a second procedure 100 individuals were retested and their original scores correlated against their new scores. The reliability coefficient, stepped up by the Brown formula ($r_2 = \frac{2r_1}{1+r}$), turned out to be .63, with a probable error of .06. It seems that the score is considerably influenced by the emotional state of the individual at the time he is undergoing the examination, and therefore does not satisfactorily uncover his basic temperament. Finally, the scores made on the first half of the test were correlated against the scores made on the second half, utilizing the entire 1000 cases examined. By this procedure the coefficient of reliability was found

to be .19 with a probable error of .03, indicating that the test is not a uniform measure for whatever it is intended to measure. Practically every individual tended to give more extrovertive responses to the first 25 statements than he did to the second 25 statements.

Conclusions.

1. Delinquents tend to group themselves in the central or neutral zone, according to test results, in contrast to the normal individuals examined by Neymann and Kohlstedt, who tend to show either marked extrovertive or introvertive traits.

2. A comparative study of delinquent extroverts and introverts from numerous angles failed to reveal any startling differences between the two groups.

3. Judging from clinical observation the Neymann-Kohlstedt Introversion-Extroversion Test is more selective for extroverts than for introverts.

4. The reliability coefficient as determined by the retest method was found to be .63 with a probable error of .06, and by the half against half method .19 with a probable error of .03.

5. It would appear that the score is considerably influenced by transitory moods which obscure basic temperamental traits.

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1. Neymann, Clarence A., and Kohlstedt, Kenneth D.: The Journal of Abnormal and Social Psychology, Vol. XXIII, No. 4, January-March 1929.
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3. Franz, Shepherd Ivory: Handbook of Mental Examination Methods, p. 193. Macmillan Co., New York, 1920.

FUNDAMENTAL EFFECTS OF EPILEPTOGENOUS AGENTS UPON THE CENTRAL NERVOUS SYSTEM.

By E. A. SPIEGEL and M. SPIEGEL-ADOLF.[1]

The experiments reported in this paper are part of systematic studies concerned with the fundamental mechanism in convulsive disorders. This mechanism must be sought in the excitable elements of the central nervous system, the nerve cells. According to the modern physicochemical theories, excitation is brought about by changes of ion concentration on semipermeable surface layers (Ostwald,[2] Nernst [3]) that induce a transitory increase in permeability of the cell surface (Höber,[4] Lillie [5]). The excitability of the cells depends, therefore, largely on the physicochemical state of their surface layers. Agents that further the increase of permeability associated with excitation will increase the excitability as long as they do not injure the cell surfaces thus far, that ion concentrations can no more develop. This is, for example, shown in the electrotonic state caused by a direct current that flows through a nerve. The excitability is increased on the cathode where the surface layers become more permeable, while on the anode a decrease of excitability as well as of permeability is found (Ebbecke [6]).

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[2] Ostwald, W.: Zschr. f. physik. Chemie, 6, H. 1, 1890.

[3] Nernst, W.: Pflueger's Arch. ges. Physiol., 122: 275, 1908; 123: 454, 1908.

[4] Höber, R.: Physik. Chemie d. Zelle u. Gewebe., 6th ed., 1926.

[5] Lillie, R.: Protoplasmic action and nervous action. University of Chicago Press, 1923.

[6] Ebbecke, U.: Pflueger's Arch. ges. Physiol., 190: 250, 1921; 195: 300-324, 555, 1922; 203: 336, 1924.

Considering these relationships, it was outlined by one of us[7] at a former meeting of this society (1930) that the hyperexcitability of the cerebral cortex and the abnormal form of its reactions found in convulsive disorders may be due to anomalies in the permeability of the surface layers of the nerve cells.[8] This conception, although in agreement with the view of Georgi,[9] Syz,[10] that the metabolic changes found in epilepsy act finally on the cell membranes, was expressed as a working hypothesis only. One has to bear in mind that experiments about the effect of various agents, such as acids, alkalis, etc., on other organs cannot be applied to the central nervous system without further proof because the brain, on account of its high lipoid content, may react differently from other organs. It seemed therefore desirable to study by systematic experiments the effect of epileptogenous and anticonvulsant agents upon the permeability of brain tissue.

As direct measurements of the cell permeability for electrolytes cannot thus far be applied to the cells of the central nervous system, it seemed necessary to have recourse to an indirect method, using the fact that polarization phenomena occur on semipermeable membranes as well as on animal tissues with semipermeable cell surface films. If a direct current flows through the skin, a muscle, nerve, or the brain, a higher resistance is measured than when alternating current is used. This is explained by the assumption that

[7] Spiegel, E.: Am. Psychiatric Assoc., Section on Convulsive Disorders, May 5, 1930. Am. J. Psychiat., 87: 595, Jan. 1931.

[8] J. McQuarrie and his associates assume also an abnormal permeability of the nerve cells in epileptics. This conception is first found in his papers on epilepsy read in 1931 (April 15-17, 1931), published in Am. Jour. Dis. Child., 42: 720, 1931, May 4, 1931, and J. Clinic Investigation, 10: 915, 1931, while in his former papers no such theory could be found (Am. J. Dis. Child., 38: 451, 1929. Research Assoc. Nerv. and Mental Disease, 7: 623, 1929-31). The observation that the ratio of lecithin to cholesterol is increased in the blood during periods of convulsions permits no conclusions as to the ratio of these lipoids in the cells themselves; furthermore the author states himself that he did not rule out that his findings in the blood were the effect of the convulsions. It seems therefore not justified to infer from these findings, that the permeability of the nerve cells was increased preceding the convulsions.

[9] Georgi, F.: Zeitschr. f. d. ges. Neurol., 106: 751, 1926.

[10] Syz, H. C.: Schweiz. Arch. f. Neur. and Psych., 21: 321, 1927. J. of Pharmacol. and Exp. Ther., 30: 1, 1926.

the ions carrying the current are partly accumulated at semi-permeable cell films, and that an electromotive force of opposite direction is in this way induced. The less permeable these films are, the larger opposing forces will develop by polarization. On the contrary, an increase in permeability of the cell membranes will diminish the accumulation of ions and the development of polarization. Thus one can use the measurement of polarizability, for instance, the measurement of the polarization capacity,[11] as pointed out by Gildemeister,[12] as an indirect method for measurement of permeability.[13]

In order to measure polarizability and thus indirectly permeability, one can also use the following fact. Animal tissues show not only a larger resistance toward direct current than toward alternating current, but also differences of resistance on conduction of alternating currents of various frequencies in that the conductivity increases with the increasing frequency. (On the frog's and human skin, Gildemeister,[14] Einthoven and Bijtel[15]; on frog's nerves, Krüger,[16] Lullies[17]). We found the same on the brain.

The difference between the conductivity at a certain high (K_h) and at a certain low frequency (K_l) expressed in percentage of the conductivity at the low frequency (Δ) may be briefly called "polarization-index." $\Delta = \frac{K_h - K_l}{K_l} \times 100$. Usually a frequency of 4860 and 560 cycles respectively was used. A drop of Δ indicates lowered polarizability and thus increased permeability of the cell surfaces. A rise of Δ indicates an increase in polarizability and consequently also in density of the surfaces.[18]

[11] Films with selective ionic permeability may show a capacity ("polarization-capacity") due to the accumulation of ions and to the development of an electric double layer that is charged and discharged by the current. (See Krueger, F. Zeitschr. f. physik. Chemie, 45: 1, 1903.)

[12] Gildemeister, M.: Handb. d. norm. and pathol. Physiol., 8: 657, 1928.

[13] The importance of the Helmholtz double layer and of the degree of dispersion of the colloid particles will be discussed in another paper.

[14] Gildemeister, M.: Pfluegers Arch. ges. Physiol., 176: 84, 1919.

[15] Einthoven and Bijtel: *Ibid.*, 198: 439, 1923.

[16] Krüger, R.: *Ibid.*, 219: 66, 1928.

[17] Lullies, H.: *Ibid.*, 225: 69, 1930.

[18] Upon a similar principle the method to measure the thickness of the plasma membrane is based. By this method the difference between the impe-

In order to analyze to some degree the underlying chemical and colloid chemical conditions, in a previous paper various artificial membranes were studied.[19] When parchment, collodium membranes,[20] 30 per cent gelatine membranes hardened in formaldehyde, 30 per cent gelatine membranes containing 2.5 per cent pseudoglobulin were measured, Δ did not exceed 0.4 per cent. With such membranes also a sharp minimum could be easily obtained on the Wheatstone bridge without the addition of condensers. On animal membranes, however, *e. g.*, a frog's skin, a Δ of more than 20 per cent was observed with the same frequencies of the alternating currents (6890 and 560 cycles respectively), and considerable capacities had to be employed in order to get a sharp minimum. These qualities were imitated by lipoid membranes containing the lipoid in fine dispersion (prepared from collodium—ether solutions containing from .2-5 per cent of lecithin or cephalin). These experiments showed the important part played by the physicochemical structure in the genesis of these polarization phenomena.

In further (unpublished) experiments it could also be quantitatively shown by direct measurements that membranes with higher Δ (higher polarizability) have a lower permeability for electrolytes. Starting from these experiments on artificial membranes we used the measurement of Δ to determine the polarizability of brain tissue in vitro and in vivo under the influence of various experimental procedures.

In the experiments reported in this paper the effect of an important group of epileptogenous factors upon the polarizability

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dance at low frequencies and at frequencies over one million is determined. (Philippson. Bull. Ac. Roy. Belg., 7: 389, 1921. McClendon, J. F.: Protoplasma, 3: 7, 1927.)

The present series of experiments is primarily not concerned with the thickness of the plasma membranes but only with changes of the membranes in polarizability and permeability respectively due to various experimental procedures. While the measurement of the impedance at frequencies over one million requires quite a complicated apparatus, it was sufficient for our purpose to limit the measurement to audible frequencies. Thus we could build an outfit that is simple enough to be portable and to be used also during operations on the human brain.

[19] Spiegel-Adolf, M., and Spiegel E.: Proc. Soc. Exp. Biol. & Med., 32: 139, 1934.

[20] In further experiments it was found that collodium membranes may show a Δ, if specially treated.

of the brain was studied, namely of changes in the state of hydration. Increase of the volume of the brain due to abnormal intake of water by the brain tissue may be observed in a number of pathologic states that are conducive to the production of convulsions. It is found, for instance, after traumatic injuries, in the neighborhood of tumors, in uremia, alcohol intoxication, water intoxication due to forced administration of excessive quantities of water (Rowntree [21]), finally, in certain psychoses. In most of these states one has not to do purely with increased hydration of the structured elements (Reichardt's Hirnschwellung [22]) but with the combined effect of increase of interstitial fluid (edema) and of increased hydration of the cellular colloids. The importance of these factors in the pathogeny of convulsive disorders is also indicated by the reports of Fay [23] and others that measures subtracting water from the body tissue reservoirs have a beneficial effect upon certain cases of epilepsy.

Method.—A Wheatstone bridge is supplied by an oscillator with alternating curents of various frequencies (560 to 9000 cycles); usually the measurements were made at 560 and 4860 Hertz (cycles per second). In order to get this range of frequencies the oscillator described by Jones and Joseph [24] was somewhat modified, particularly by addition of small capacities. It was enclosed in a grounded iron shield and placed at a distance of 5 m. from the bridge. The lead wires from the oscillator to the bridge were also surrounded by a grounded metallic sheath until close to the bridge according to the directions of Jones and Joseph. The sensitivity of the detector was increased by insertion of an amplifier (General Radio Co.—Type 514 A) between the bridge and the telephone. In order to obtain a sharp minimum a decade condenser and a variable air condenser were connected in parallel with the resistance box. Thus not only the conductivity and the polarization index, but also the polarization capacity could be determined. Since the condensers are here connected in parallel with the resistance box,

[21] Rowntree, L. G.: J. Pharmacol. and Exper. Ther., 29: 135, 1926.

[22] Reichardt: Zschr. ges. Neur. and Psych. Ref., 3: 1, 1911; Allg. Zschr. f. Psychiatrie, 75: 34, 1910.

[23] Fay, T.: Am. J. Psychiat., 85: 783, 1929; Res. Ass. Nerv. and Ment. Dis., 7: 592, 1929-31; Arch. Neur. and Psych., 23: 920, 1930; J. Nerv. and Ment. Dis., 71: 481, 1930.

[24] Jones, G., and Joseph, R. C.: J. Am. Chem. Soc., 50: 1049, 1928.

an increase in capacity indicates an increase in polarization. The use of proper electrodes proved to be particularly important. After numerous experiments with various types (especially Ag-AgCl electrodes), we found that platinum electrodes that were coated with black of platinum and then heated to red gave the most satisfactory results. First small triangular or ovoid (5 mm. in length, 4 mm. in width) plates, later platinum wires of 1 mm. diameter were used. The electrodes were fused in thin glass tubes that contained also the lead wires. It was finally decided to use 6-10 cm. long straight platinum wires that were fused in glass tubes so that on both sides only the ends of the wires remained bare. The bare end that was inserted into the brain was 6 mm long. The other end could be easily connected with and disconnected from the bridge by using small alligator clamps on the end of the bridge connections. The glass tubes containing the electrodes were fastened in a holder so that a fixed (constant) distance of the electrode wires of 9 mm. was secured. The holder was provided with a ball and socket joint that facilitated to adapt the position of the electrode to the surface of the brain. It must be emphasized that the electrodes had to be heated to red before each experiment, and that every day control measurements were made before the actual experiments, to ascertain whether the electrodes themselves gave a difference in conductivity at high and low frequencies, when tested in salt solutions (*c. g.*, $\frac{n}{100}$ KCl). Such differences occur if the electrodes are contaminated by small amounts of organic matter. If this difference can not be abolished or sufficiently reduced (to, at most, 1-2 millimeter [25] on the Wheatstone bridge) by heating the electrodes, they have to be recoated with black of platinum. The experiments were performed on 50 brains (of calves, cats, guinea pigs and rabbits). With the exception of the calves' brains that could not be measured before at least two hours after death, the organ was examined as soon as possible post mortem. The measurements usually were made on the lateral surface of the cerebral hemispheres after the brain was symmetrically divided. Each hemisphere was put for the measure-

[25] If electrodes showing such differences are used, one must subtract the Δ given by the electrodes in solutions from the Δ measured on the brain. Yet we avoided as much as possible the use of such electrodes.

ment, usually upon its medial surface, in a small glass dish, that had on its ground a layer of paraffine with a shallow groove conforming to the medial surface of the hemisphere. The dish was covered with wet filter paper that had an opening for the electrodes. As a rule, the measurements were made, if not otherwise indicated, at 39° C. in an incubator that contained the electrodes with their holder as well as the dishes with the specimens under measurements. After the first measurement each hemisphere was dropped in a covered beaker that contained 50 or 100 cc. of the solution to be studied and was also kept in the incubator at 39° C. if not otherwise indicated. At intervals the brain was taken from the solution, its surface was dried by filter paper and its polarization index was redetermined.

In the experiments on the cerebral hemispheres of living animals (usually cats) two small trephine holes were made corresponding to each electrode or one large opening was produced, the diameter of which was somewhat larger than the distance of the electrodes. In the latter case it was necessary to keep the cortex moist by dripping warm saline solution in the intervals between the measurements. To protect it from cooling down and becoming dry a plastilin cap was made that fitted over the gap in the cranium and could be easily removed and replaced. The measurements were made under ether or dial anesthesia. For measurements on the brain stem the cats were decerebrated by a transverse section cranially to the midbrain after ligation of both carotid arteries, the hemispheres and the optic thalamus were extirpated, eventually also the tentorium was removed and clips were placed on the stumps of the internal carotid arteries. In these decerebrated animals it is of course important not only to protect the exposed parts of the brain from cooling down and becoming dry, but also to keep the animal's temperature constant (*e. g.*, by electric lamps). Special care was taken to fix rigidly the head as well as the electrodes, because slight displacements of the electrodes in the brain may induce errors in the measurements. The bare parts of the electrodes must be completely inserted into the brain, so that the glass tubes in which the electrodes are fused remain in close touch with the surface of the brain. If the electrodes are incompletely inserted, the measurements are unreliable and may become impossible, because the length of the part of the electrodes reaching

into the brain varies with the respiratory movements of the surface of the organ. The animal board was electrically insulated by placing its feet in glass cups.

Results and Comment.

We have produced swelling *in vitro* as well as *in vivo*. If one places the brain in hypotonic salt solutions or in distilled water, it increases in weight and volume. This change is associated with a marked decrease of the polarization-index. It must be emphasized, however, that Δ decreases already in physiologic saline solution. Measurements on 10 brains of guinea pigs and cats respectively gave per hour an average decrease of 10.2 per cent of the initial value. This decrease is partly due to postmortem changes, partly due to the fact that a slight swelling of the brain occurs even in the so called physiologic saline solution (Vaudervach [26]). This decrease of Δ is less marked in Ringer solution than in .9 per cent NaCl solution. In distilled water the curve of the polarization index shows a much steeper slope than in the saline solution. (Table I.) A similar or sometimes still steeper decrease of Δ than observed in distilled water is induced by alkali, even if the alkali solution is made isotonic or slightly hypertonic by preparing the dilution with saline solution. (Table II.) Such a steep slope of the Δ curve as observed in alkali solution is as a rule missed in acids. The acids diminish the polarizability of the brain usually not more or only slightly more than does physiologic saline solution. (Table III.) A distinct decrease of Δ was only observed in sulfuric acid. The decrease in a mixture of hydrochloric acid and saline solution did not exceed or was even smaller than that observed in saline solutions. We are here, of course, particularly interested in the effect of acids occuring in the animal organism. Saline solution acidified with lactic or phosphoric acid did not produce a more marked or produced even a slighter diminution of Δ than did pure saline solution. CO_2 conducted through a .9 per cent NaCl solution was somewhat more effective in producing a decrease of Δ; but the change remained within the range of the effects of .9 per cent NaCl solution.

[26] Vaudervach, F.: Arch. internat. de physiol., 38: 278, 1934.

TABLE I.*

DISTILLED WATER.

	Initial value.			After swelling.			Decrease of Δ	
	Δ	Conductance (560 Hertz)	Capacity (560 Hertz)	Δ	Conductance (560 Hertz)	Capacity (560 Hertz)		In per cent per hour.
Guinea pig No. 41 37° C.	15.0 (26′)	5.510×10^{-4}	—	12.5 (82′)	4.818×10^{-4}	—	2.5	16.5
Guinea pig No. 45 37° C.	13.4 (21′)	6.077×10^{-4}	.025 microfarad	10.5 (70′)	4.671×10^{-4}	.018 microfarad	2.9	25.9
Cat No. 48 38° C.	14.3 (72′)	9.085×10^{-4}	.025	8.3 (198′)	7.800×10^{-4}	.022	6.0	21.4
Guinea pig No. 84 39° C.	11.1 (22′)	7.196×10^{-4}	.020	9.4 (100′)	6.543×10^{-4}	.019	1.7	11.4
Guinea pig No. 89	13.9 (28′)	7.232×10^{-4}	.023	12.0 (108′)	6.176×10^{-4}	.020	1.9	10.3
Average								17.1

* Explanation to Tables I-III: The figures in parenthesis mean minutes after death.

TABLE II.

ALKALI.

	Initial value.			After swelling in alkali.			Decrease of Δ		Decrease in per cent per hour on opposite hemisphere in .9 per cent NaCl.
	Δ	Conductance (560 Hertz)	Capacity (560 Hertz)	Δ	Conductance (560 Hertz)	Capacity (560 Hertz)		In per cent per hour.	
n/100 NaOH; .9 per cent NaCl Guinea pig No. 28 37.2° C.	11.5 (41′)	8.64×10^{-4}	—	5.6 (264′)	1.72×10^{-3}	—	5.9	14.0	4.1
n/100 NaOH; .9 per cent NaCl Guinea pig No. 29 37.0° C.	12.8 (32′)	6.95×10^{-4}	—	7.5 (155′)	1.302×10^{-3}	—	5.3	20.4	—
n/100 NH_4OH .9 per cent NaCl Guinea pig No. 34 38° C.	12.9 (18′)	6.949×10^{-4}	—	10.5 (90′)	8.117×10^{-4}	—	2.4	16.0	13.5
n/1000 NaOH .9 per cent NaCl Guinea pig No. 35 38° C.	16.0 (25′)	8.018×10^{-4}	—	13.6 (82′) 11.9 (155′)	7.953×10^{-4} 8.215×10^{-4}	—	2.4	15.0	13.7
n/100 NaOH; .9 per cent NaCl Guinea pig No. 36 37° C.	12.5 (17′)	7.76×10^{-4}	—	8.6 (95′)	1.475×10^{-3}	—	3.9	24.4	5.0
n/100 NaOH Guinea pig No. 38 37° C.	15.4 (22′)	6.313×10^{-4}	.035 microfarad.	11.1 (69′)	6.848×10^{-4}	.026 microfarad.	4.3	36.8	NaOH on both sides applied.

TABLE II.—Continued.

Alkali.

	Initial value.			After swelling in alkali.			Decrease of Δ		Decrease in per cent per hour on opposite hemisphere in .9 per cent NaCl.
	Δ	Conductance (560 Hertz)	Capacity (560 Hertz)	Δ	Conductance (560 Hertz)	Capacity (560 Hertz)		In per cent per hour.	
n/100 NaOH Guinea pig No. 39 37° C.	13.9 (16′)	6.064×10^{-4}	.025	10.4 (72′)	7.007×10^{-4}	.023	3.5	25.0	NaOH on both sides applied
n/100 NaOH Guinea pig No. 53 37.5° C.	14.1 (25′)	6.278×10^{-4}	.02	11.4 (115′)	5.796×10^{-4}	.02	2.7	12.9	NaOH on both sides applied.
n/100 NaOH Cat No. 56 38° C.	11.2 (35′)	6.380×10^{-4} (680 Hertz)	.012	8.3 (150′)	7.518×10^{-4} (680 Hertz)	.011	2.9	13.8	NaOH on both sides applied.
n/100 NaOH Guinea pig No. 87 39° C.	14.3 (20′)	7.181×10^{-4}	.023	12.4 (95′)	6.207×10^{-4}	.022	1.9	10.9	NaOH on both sides applied.
Average								18.92	

TABLE III.

ACIDS.

	Initial value.		After action of acid.		Decrease of Δ		Decrease in per cent per hour on opposite hemisphere in .9 per cent NaCl.
	Δ	Conductance (560 Hertz)	Δ	Conductance (560 Hertz)		In per cent per hour.	
n/100 HCl; .9 per cent NaCl Cat No. 21 36° C.	9.4 (127′)	1.176×10^{-3}	8.5 (180′)	1.344×10^{-3}	.9	9.5	—
n/100 H_2SO_4 .9 per cent NaCl Guinea pig No. 82 38.5° C.	13.5 (29′)	6.667×10^{-4}	9.6 (100′)	9.011×10^{-4}	3.9	24.3	13.1
n/100 lactic acid .9 per cent NaCl Guinea pig No. 81 39° C.	13.0 (19′)	7.605×10^{-4}	11.8 (172′)	5.961×10^{-4}	1.2	3.7	7.3
m/100 H_3PO_4; .9 per cent. NaCl Cat No. 83 39° C.	11.4 (32′)	1.000×10^{-3}	11.3 (94′)	1.024×10^{-3}	.1	0.8	9.6
CO_2 conducted through .9 per cent NaCl Guinea pig No. 93 38.5° C.	12.4 (18′)	7.698×10^{-4}	11.2 (85′)	8.570×10^{-4}	1.2	9.9	8.5

In interpreting these observations, one is confronted with the question as to how far the ganglion cells play a part in the measurement of brain polarization and in changes of this value. The Δ of regions that contain numerous ganglion cells (grey matter of the cortex and the caudate nucleus), was therefore, compared with the Δ of regions without ganglion cells (white matter). Calves' brains were cut in discs of 1-2 cm. thickness by frontal sections so that the Δ of the cortex as well as of the white matter and of the subcortical ganglia could be determined on one and the same disc under comparable conditions (disc placed in a moist chamber in an incubator at constant temperature). These measurements showed that Δ is on an average in the cortex by 23 per cent, in the caudate nucleus by 55 per cent higher than in the white matter. This can not be due to the better blood supply nor to the higher water content of the grey matter. There remains rather little blood in the brain after death. But above all one has to consider that a part richer in blood or in interstitial fluid should have less structured elements per cubic millimeter and give the current also a better opportunity to flow between or around these structures; thus it should have a lower Δ, while a higher Δ was found in the grey matter. The inference that the higher Δ of the grey matter indicates a greater amount of polarizable films in the grey matter, is corroborated by the measurement of the polarization capacitance. This value was higher in the grey matter than in the white matter; *e. g.*, 2 hours, 28 minutes after death caudate nucleus at 560 Hertz .028 microfarad, centrum semiovale .023 mircofarad. It is also quite improbable that the differences found between the Δ of the grey and that of the white matter are due to the differences in the development of postmortem changes. It is true that Δ diminishes several hours after death. Yet it is known that nerve fibers forming the white matter survive longer, remain longer excitable and are more resistant than the ganglion cells in the grey matter. Portmortem changes should therefore produce differences between Δ of the grey and white matter in the opposite direction than found. One may, therefore, infer that the higher value of Δ found in the grey matter as compared with the white matter is due to the structural differences of these two regions, indicating that the surfaces of the ganglion cells play quite an important part in the polarization phenomena under study.

The objection could be raised that the decrease of the polarization index observed after the brain has been immersed in distilled water or in alkali solution may be due to changes in conductivity in the intercellular spaces. The decrease of Δ, however, is independent of the changes in conductivity, and was observed with increasing conductivity (swelling in alkali-NaCl solution) as well as with decreasing conductivity (swelling in distilled water). In analyzing this question, it is also important to compare the effect of acids and that of alkalis. The entrance of an acid-NaCl-mixture into the intercellular spaces should improve the conduction of the current in the intercellular spaces at least as well as an equimolecular NaOH-NaCl mixture. Yet the diminution of Δ was much more marked under the influence of alkali that induced marked swelling than under that of acids. These facts seem to refute the above mentioned objection, and it seems therefore justified to conclude that the decrease of the polarizability indicates a change of the surface layers of the structured elements, particularly of the cells. Such a change can be well understood if one remembers that swelling loosens the structure of a membrane by intake of water between its molecules or micelles (Katz [27]). By such a structural change in the surface layers of the cells an increase of the permeability and consequently a decrease of polarizability will be easily produced.

If one produces first a swelling of the brain and consequently a decrease of Δ by alkali, and then places the brain in acids, the further decrease of the polarization index is inhibited or even a partial restoration of the former value may be produced. Acetic acid and tricarballylic acid were in this respect more effective than hydrochloric acid. (Table IV.)

The particular effects of acids upon the polarizability of the brain can be understood, if one remembers that acids, contrary to their influence upon other organs, do not further the swelling of the central nervous system or may even inhibit the swelling as shown by I. Bauer [28] by gravimetric measurements in post mortem experiments. On nerve fibers E. Spiegel [29] used the fact that swelling lowers or destroys the birefringence of the myelin sheaths

[27] Katz, I. R.: Erg. d. exakt. Naturwissensch., 3: 316, 1924.
[28] Bauer, I.: Arb. Neurol. Instit. Universit. Wien, 19: 87, 1911.
[29] Spiegel, E.: Pfluegers Arch. ges. Physiol., 192: 225, 1921.

TABLE IV.

TABLE IV.

EFFECT OF ACIDS AND NEUTRAL SALTS ON SWOLLEN BRAINS*

No. of the guinea pig.		Initial values.		Swelling effected by:	After swelling.	Shrinkage tried by:	After shrinkage.	
No. 39 (Guinea pig)..	R	Δ Conductivity (560 H)	13.9 (16′) 6.064×10^{-4}	n/100 NaOH	10.4 (71′) 7.007×10^{-4}	n/100 Acetic acid	10.9 (155′) 3.85×10^{-4}	10.1 (295′) 3.284×10^{-4}
	L	Δ Conductivity	14.1 (25′) 6.396×10^{-4}	n/100 NaOH	10.3 (105′) 6.632×10^{-4}	n/100 HCl	8.7 (173′) 4.31×10^{-4}	6.6 (327′) 3.73×10^{-4}
No. 87 (Guinea pig)..	L	Δ Conductivity (560 H)	14.3 (20′) 7.181×10^{-4}	n/100 NaOH	12.2 (95′) 6.207×10^{-4}	n/100 tri-carballylic acid	14.0 (219′) 4.185×10^{-4}	12.85 (310′) 4.158×10^{-4}
	R	Δ Conductivity (560 H)	14.6 (27′) 6.949×10^{-4}	n/100 NaOH	13.1 (104′) 6.260×10^{-4}	n/100 HCl	12.4 (222′) 4.368×10^{-4}	10.9 (320′) 4.882×10^{-4}
No. 38 (Guinea pig)..	L	Δ Conductivity Capac. μF	15.4 (22′) 6.313×10^{-4} .035	n/100 NaOH	11.1 (68′) 6.848×10^{-4} .026	.31nNaCl	10.4 (120′) 1.222×10^{-3} .037	10.7 (296′) 1.222×10^{-3} .036
	R	Δ Conductivity Capac. μF	15.0 (38′) 5.823×10^{-4} .035	n/100 NaOH	11.1 (75′) 6.722×10^{-4} .025	.31n$CaCl_2$	12.8 (135′) 3.154×10^{-3} .085	11.0 (325′) 4.185×10^{-3} .14
No. 45 (Guinea pig)..	L	Δ Conductivity (560 H) Capac. μF	13.4 (21′) 6.077×10^{-4} .025	Distilled water.	10.5 (70′) 4.671×10^{-4} .018	.33nKCl	11.4 (131′) 1.000×10^{-3} .027	10.5 (260′) 9.385×10^{-4} .026
	R	Δ Conductivity Capacity	13.3 (31′) 6.327×10^{-4} .026	Distilled water.	10.5 (87′) 5.352×10^{-4} .018	.33nKBr	12.0 (136′) 1.022×10^{-3} —	11.3 (270′) 1.045×10^{-3} .027

* Figures in parenthesis mean minutes after death.

TABLE IV.—CONTINUED.

EFFECT OF ACIDS AND NEUTRAL SALTS ON SWOLLEN BRAINS*

No. of the guinea pig.		Initial values.		Swelling effected by:	After swelling.	Shrinkage tried by:	After shrinkage.	
No. 84 (Guinea pig)..	R	Δ	11.1 (22′)	Distilled water.	9.4 (100′)	.32nKCl	9.3 (210′)	9.1 (350′)
		Conductivity	7.196×10^{-4}		6.543×10^{-4}		9.98×10^{-4}	1.134×10^{-3}
		Capacity	.020		.019		.020	.018
	L	Δ	11.0	Distilled water.	10.2 (90′)	.32nKCNS	7.5 (190′)	7.1 (360′)
		Conductivity	7.241×10^{-4}		5.601×10^{-4}		1.008×10^{-3}	1.1985×10^{-3}
		Capacity	.021		.019		.017	.015
No. 88 (Guinea pig)..	R	Δ	—	Distilled water.	10.8 (120′)	.32nKCl	10.5 (205′)	—
		Conductivity			6.012×10^{-4}		9.493×10^{-4}	
		Capac. μF			.017		.018	
	L	Δ	—	Distilled water.	11.3 (127′)	.32nKJ	8.5 (193′)	—
		Conductivity			6.543×10^{-4}		1.020×10^{-3}	
		Capacity			.018		.016	

* Figures in parenthesis mean minutes after death.

in order to study the influence of acids upon swelling not only post mortem but also intra vitam. He found that addition of acids to diluted Ringer solution furthers the swelling only in such concentrations that injure already the excitability. When swelling was produced intra vitam by endogenous production of acids (M. Fischer's [30] method of uranylnitrate intoxication), or when acids were introduced by mouth, no swelling of the myelin sheaths was produced as shown by the birefringence.

The fact that acids further swelling of the brain only slightly, if at all, contrary to their marked swelling influence upon other organs (*e. g.*, muscles), may be due to the high lipoid content of the brain. If one studies the state of hydration of proteins and that of lipoids by measurements of viscosity, one finds that acids increase the viscosity and the hydration of proteins but decrease that of lipoids. The actions of alkalis on proteins and lipoids are synergic; they call forth up to a certain concentration a steep increase in viscosity and hydration. The result is marked swelling of the brain and consequently a decrease of Δ. The action of acids upon lipoids and proteins being antagonistic, the effect upon the entire brain may be no change or only quite a slight swelling (decrease of Δ). If a brain swollen by alkali (low Δ) is immersed in solutions of certain acids, such as tricarballylic acid, this acid plus the salt formed by the neutralization of the alkali may even induce a shrinkage of the brain (increase of Δ).

Neutral salts lower the state of hydration of protein as well as of lipoid solutions as shown by viscosity measurements. It seemed therefore of interest, particularly from a therapeutic angle, to ascertain as to how far neutral salts may inhibit a decrease of Δ or restore the polarizability in a swollen brain. In analogy to the experiments of Haldi [31] and coworkers on the effect of anions and cations on water absorption by brain tissue, we found that in the series of cations Na inhibits the decrease of Δ more than does K, while Lithium was more effectual than Na. In agreement with the general experiences of a solidifying effect on other organs Ca inhibited the decrease of Δ as compared with Na and induced an increase of this value in a swollen brain. (Table IV.) This effect

[30] Fischer, M. H.: Das Oedem, Dresden, 1910.

[31] Haldi, J. A., Rauth, J. W., Larkin, J., Wright, P.: Am. J. Physiol., 80: 631, 1927.

was more marked if shorter time after death had elapsed. Magnesium, however, has no inhibitory effect upon the decrease of Δ. If the effect of equivalent NaCl and $MgCl_2$ solutions was compared, in the latter solution even a more marked decrease of Δ was found than in the former.

In the group of the trivalent cations, Lanthanum had a distinct inhibitory effect upon the decrease of Δ as compared with Na, while such an effect of Aluminum was missed. In $AlCl_3$ Δ showed even a more marked decrease than in equivalent NaCl after previous swelling in distilled water.

As to the effect of anions, one should expect according to the Hofmeister series that chlorides have a more marked inhibitory effect upon the swelling than bromides. It was found, however, on the contrary, that Δ increased after previous swelling of the brain more in NaBr solution than it did in equivalent NaCl solution. (Table IV.) This is in agreement with the statement of Haldi and coworkers that swelling of the brain is more inhibited by bromides than by chlorides.[32] The particular effect of bromides is explained by experiments of Spiegel-Adolf [33] showing that the viscosity and refraction of lecithin sols are more depressed by addition of bromides than by equal concentrations of chlorides. This phenomenon was explained by a chemical reaction between molecular bromine and the unsaturated fatty acid in the lecithin. In NaI and in Na CNS [34] solution Δ decreased more than it did in equivalent NaCl solution; this is in agreement with the Hofmeister series, while Haldi observed that CNS inhibits the swelling of the brain more than does Cl. Yet also viscosity experiments on cephalin solutions [35] speak in favor of the Hofmeister series.

[32] The contradictory findings of Bernoulli (Arch. exp. Path. and Pharmak., 73: 355, 1913) are perhaps due to the fact that he made his observations too late after death, so that postmortem changes may have interfered. Spiegel-Adolf [35] has shown that partial or complete oxidation of the unsaturated group of the lecithin molecule induces a partial or complete disappearance of the specific bromide effect. In an oxydized sample of lecithin bromides be have as expected according to their position in the Hofmeister series.

[33] Spiegel-Adolf, M.: Klin. Wochsch., 11: 185, 1932. Biochem. J., 26: 2183, 1932.

[34] This fact must be borne in mind in view of recent recommendations of CNS-salt solutions for therapeutic uses.

[35] Spiegel-Adolf, M.: Biochem. J. 29: 2413, 1935.

These experiments indicate that the state of hydration of the brain colloids influences largely the permeability of the cell surface films in that swelling increases the permeability as indicated by the diminution of polarizability. This effect upon the cell surfaces is, at least to some degree, reversible, as shown by the action of acids (acetic, tricarballylic acid) and of neutral salts (bromine, calcium, lanthanum salts).

The close relationship between the state of hydration and the polarizability shown in these in vitro experiments can also be found in vivo. The experiments of Weed, Weed and Wegefarth [36] have shown that intravenous injection of distilled water is followed by cerebral edema; finally also hydration of the nerve cells takes place (A. Ferraro [37]). Such injections increased in experiments of Elsberg and Pike,[38] Pike [39] and coworkers in most of their cats the susceptibility of the animals to convulsive seizures as tested by absinth injection. When the skull is left intact, it is of course not possible to decide as to whether this change in excitability is due only to the increase of intracranial pressure produced by the increase of brain volume, or whether changes in the physicochemical state of the brain play also a part.

In our experiments the skull was trephined and the dura opened over the parietal lobe so that the electrodes could be inserted here. Changes in intracranial pressure could therefore not be produced by the intravenous injection of distilled water. Special care was taken to keep the exposed cortex warm.

The injections of distilled water are followed by a fall of the polarization index that again may spontaneously rise to some extent. This rise is probably due to extracerebral mechanism that try to restore the isotonia of the blood. These changes of Δ occur independently of the conductivity curve that may first show a slight rise and then fall. This initial rise of conductance may be produced, apart from the permeability change, by the passing of electrolytes from cells into interstitial spaces. To understand the fol-

[36] Weed, L. H.: Am. J. Anat., 31: 253, 1923. Weed, L. H., and Wegefarth, P.: J. Pharmacol. & Exp. Ther., 13: 317, 1919.

[37] Ferraro, A.: Journ. Nerv. & Ment. Dis., 71: 129, 1930.

[38] Elsberg, E., and Pike, F. H.: Am. J. Physiol., 76: 593, 1926.

[39] Pike, F. H., et al.: Am. J. Psychiat., 12.(89): 947, 1933.

lowing fall of conductance one has to bear in mind that the injection of distilled water or hypotonic solutions affects also the cerebral circulation (Kubie and Hetler [40]) Pilcher,[41] and that impairment of the cerebral blood supply tends to diminish the conductivity of

TABLE V.

INTRAVITAL ACTION OF DISTILLED WATER.

Cat No. 54. Parietal lobe measured in ether anesthesia; weight 2.5 kg.

Time	Conductance (560 Hertz).	Δ (4860-560 Hertz).
1.11	2.830×10^{-3}	10.6
1.16	2.830	10.8
1.19	20 cc. Distilled water into femoral vein injected. Deep respiration.	
1.21	2.854	9.78
1.24	2.842	10.5
1.26	2.842	10.5
1.30	20 cc. Distilled water injected.	
1.32	2.796	9.64
1.35	2.790	9.8
1.38	2.778	10.3
1.44	2.762	10.2
1.47	2.738	10.2

Cat No. 58. Weight 1.9 Kg. Decerebrated in the morning; Cerebellum measured.

Time	Conductance (680 Hertz).	Δ (4860-680 Hertz).
4.15	.9231	9.6
4.20	.9231	9.0
4.23	.9649	9.1
4.28	20 cc. Distilled water in femoral vein injected.	
4.31	1.083	8.8
	1.075	9.2
4.35	20 cc. Distilled water injected.	
4.37	1.105	5.4
4.40	1.088	6.2
4.45	1.014	9.0

the brain. Our further experiments indicate that decrease of the oxygen supply of the brain also diminishes the polarizability, while

[40] Kubie, L. S., and Hetler, D. M.: Arch. Neur. and Psych., 20: 740, 1928.
[41] Cobb, Pilcher: Arch. Neur. and Psych., 24: 899, 1930.

hypnotics and anesthetics have the opposite effect.[42] Thus the effect of hypotonic solutions or distilled water upon the brain in vivo is somewhat more complicated than in vitro: besides the mechanical effect of the increased volume of the brain (increased intracranial pressure) at least two factors act upon the brain: the swelling of its colloids as already shown in vitro and the impairment of its oxygen supply. Both these factors tend to increase the permeability of the cell surface layers and thus induce an increased susceptibility to convulsive seizures.

SUMMARY.

1. The permeability of the cell surfaces for electrolytes was studied in vitro and in vivo by measuring the polarizability of the brain tissue.

2. Agents that produce swelling of the brain by increasing the state of hydration of the brain tissue (*e. g.*, distilled water, alkali) increase the permeability, as shown by the decrease in polarizibility. This is a reversible process, as indicated by the effect of some acids and of hypertonic salt solutions after previous swelling of the brain.

3. These experiments support the view that pathologic processes which call forth swelling of the brain produce an impairment of the cell surfaces in that their density is lowered. The transitory increase in permeability of the cell surfaces that is, according to the modern theories of excitation, an essential part of the excitation process is thus facilitated, and the threshold of the cells for metabolic or other stimuli is lowered. This explains the mechanism by which swelling of the brain increases the convulsive reactivity. Investigations are under way to ascertain as to whether other epileptogenous agents have similar basic effects.

DISCUSSION.

DR. S. BERNARD WORTIS (New York).—I want to congratulate Doctors Spiegel and M. Spiegel-Adolf on their paper—which I think is an important attempt to understand the fundamentals of cortical irritability. I would like to add a note on the nature of the metabolism of brain tissue, which is a

[42] Spiegel, E., and Spiegel-Adolf, M.: 2nd Internatl. Neurolog. Congress, London, July, 1935. Revue Neurologique, Oct., 1935.

biochemical aspect of irritability or the loss of irritability that Dr. Spiegel measures electrically.

During the past seven or eight years, through the work of Otto Warburg, the metabolism of brain tissue has been measured accurately. Small pieces of brain tissue are placed in the Barcroft-Warburg unit, in which one can determine the rate of oxidation of the brain tissue as well as the nature of the foodstuff that such brain tissue is utilizing. The accumulated experience and information by this technique seems to show that brain tissue under normal conditions utilizes sugar or lactic acid. Lactic acid is probably the important foodstuff; sugar is utilized only after its conversion into lactic acid. This fact partly explains the mechanism of hypoglycemic convulsions due to hyper-insulinism. By this means one can measure the oxidation rate of cerebral tissue under the effects of increasing amounts of insulin and dminishing amounts of glucose and lactic acid. If one has insulin in the substrate with brain tissue, the respiratory action of the tissue is depressed below that of the brain tissue in normal Ringer phosphate solution. The brain can use sugar in the absence of insulin, and this is an important biological law and an enormous "factor of safety" to remember for brain oxidations.

With regard to the effect of bromides on brain metabolism, may I say that this effect was measured and reported last year from the Bellevue Laboratory of Experimental Neurology, where it was found that the effect of bromides and other sedatives reduced the oxidation rate of the brain tissue and very often changed the nature of the brain oxidation. (Wortis, S. B.: Archives of Neurology and Psychiatry, May, 1935.)

I would like to add this bit of information to what Dr. Spiegel has spoken of, just to point out that his approach considers only one phase of neural action. He is speaking particularly of the electrical reaction of the tissue. The brain metabolism findings take cognizance of another aspect, very likely related; and both views must be considered when speaking of the effects of epileptogenous agents on brain tissue. It has been found that certain diseases produce metabolic changes in brain tissue. For example, we know now that in patients or animals with a polyneuritic syndrome due to Vitamin B deficiency, there is a diminution in the respiratory rate of brain tissue as well as in the peripheral nerve tissue of such people or animals. The oxidation rate of such tissue can be restored to normal in vitro or in vivo by the addition of crystalline vitamin BI. complex. This chemical aspect undoubtedly has its electrical counterpart. In other words, this material brings together a large group of recent important experimental data which explains in terms of physics and chemistry some of the phenomena that occur in the course of epileptic seizures. May I offer my thanks and admiration to the authors.

Dr. A. B. Mangus (Chicago).—There are two known facts in relation to the factors of metabolism in epilepsy, or in cases subjected to narcosomania therapy. It was brought out in connection with the permeability of the

cells and their effects by alkali and acids. As far as I know, if an epileptic individual is subjected to alkali medium, it does not have any serious effect or alteration upon the convulsive state of the individual. However, if the same epileptic were put in a state of acidosis and if alkali were then injected, the epileptic individual would have no seizure.

I would like to have Dr. Spiegel tell me a little bit more about the subject.

Now the second point, how to explain the difference of the factor of permeability of the cell when we know that dial and the action of dial is distinct in the hypothalmic area, whereas chloroform is a cortical hypnotic.

CHAIRMAN FAY.—The Chair cannot pass this oportunity without one remark, and that is, it seems to us as we have watched Dr. Spiegel's work, that we are growing closer to the therapeutic field that has tried to eliminate a great many drugs and rely on a few, and this delta change which he has demonstrated in the presence of chloral hydrate, bromide and other accepted means of interrupting the seizure, or at least preventing the sensitivity of the cortex, now comes down to physical relationships again.

Those factors that Lennox and Cobb outlined as fundamental disturbances in the oxygen availability and the factors concerned with water balance which we have stressed, contribute toward disturbing the cell permeability.

DR. ERNST A. SPIEGEL (Philadelphia).—The approach to this question of epilepsy from an experimental point of view is of course possible from many angles and we tried to approach it just from the physicochemical point of view. I am sure that a study of the cell metabolism will throw also much light upon these questions. There might probably be some interrelationships between both groups of phenomena. If the oxygen supply of the tissue is lower, then the permeability is increased, as our experiments have shown and this might be the relationship between these two groups of research and study.

As far as the question of alkalosis and acidosis is concerned, one is on rather difficult ground because the clinical findings on these subjects are so varied. For instance, in 1919 Elias claimed that excitability of the nervous system is increased in acidosis, he brings also a tremendous amount of literature proving the point and showing that acidosis increases excitability. This work was later on criticized, rightly I believe, because if acids are too quickly injected, then a failure of the respiratory center and consequently anoxemia might be the result. I think one must be very careful in interpreting clinical measurements on acidosis and alkalosis. The best work so far, I believe, is the work by Bigwood who has shown there is some shift of the acid base equilibrium to the alkaline side in a group of epileptic patients.

As far as experiments on anesthesia are concerned, it was observed by Pick and others that barbiturates act mainly on the subcortical ganglia and chloroform on the cortex. There doesn't exist, however, a toxin that has its action only on a minute part or sharply localized center. All we can say is that

one acts predominantly on a particular region. In dial anesthesia the cortical excitability is still present but if you increase the doses of dial, you will then see that the cortical excitability also diminishes. And furthermore, if you go into the action of chloralhydrate and chloroform, you will surely find they act primarily on the cortex, but you can find some lower centers eventually become also paralyzed. Thus it seems to me we can't assume specific action of these narcotics on a certain part of the nervous system and all we can say is, they act predominantly on this or that part of the nervous system.

FUNCTIONAL PSYCHOSES IN CHILDREN.

An Analysis of the Findings in Twenty Cases of Psychotic Children Studied at the Child Guidance Home.*

By LOUIS A. LURIE, M. D., ESTHER B. TIETZ, M. D., and JACK HERTZMAN, M. D.

In the course of a general review of the first 1000 cases of problem children studied at the Child Guidance Home, it was observed with great interest that, excluding those affected with an obvious organic involvement of the central nervous system, such as syphilis or neoplasm, two per cent of the children of this group presented symptoms sufficient to warrant a diagnosis of a definite psychosis. This was all the more striking because these children had been sent to the Home not because they appeared "insane," but because of their failure to adjust either in their homes, or in school, or in the community. This suggests the possibility that the incidence of mental disease among the child population at large may be even greater than what we have been led to suspect from the meager reports in the literature.

Thus, for example, Hagen [1] found only one case of psychosis in children among 72,000 inhabitants. Rhein [2] was able to collect only 44 cases of psychoses in children and of these, 30 were manic-depressive, 13 were post infectious, and only one suggested dementia præcox. Again Strecker,[3] in reviewing 5000 consecutive hospital admissions to the Pennsylvania Hospital, found but 18 cases of psychoses in individuals under 15 years of age. The diagnosis in four of these cases was doubtful, four were diagnosed as dementia præcox, and ten were manic-depressive. Potter,[4] in a more recent article, reported six cases of schizophrenia in children, ranging in age from 4 to 12, but he made no comment on the incidence. Kasanin [5] reported findings in ten cases. As late as 1929, Kasanin, in an article entitled "Functional Psychoses in Children" made the following statement: "In clinics dealing with behavior children, such as habit clinics, the Judge Baker Foundation, and to some extent, our own outpatient department (Boston Psychopathic Hospital), reports are to the effect that psychoses in children are

* From the Child Guidance Home, Cincinnati, Ohio, and Longview State Hospital.

rare." In 1931, the same author reported that only two or three cases of affective psychoses in children are seen per year out of an average of 1900 yearly admissions to the Boston Psychopathic Hospital. Kanner,* in a series of approximately 1700 children up to the age of 14, studied at the Harriet Lane Hospital, found only four cases that were considered psychotic. Three of these children, all boys, were diagnosed as schizophrenia. One child had an obsessive psychosis.

Hence, the incidence of 2 per cent of psychoses among an unselected group of one thousand children studied at the Child Guidance Home is very significant and calls for serious consideration.

Psychoses in children are rarely diagnosed as such. The reason for this is twofold. First, the symptomology of psychoses in childhood is not as sharply defined as in adults, and second, such children are, as a rule, first examined by the general practitioner or pediatrician or psychologist, who frequently consider the child's bizarre reactions merely in the light of ordinary behavior problems or antisocial acts. Both the diagnosis and treatment are centered around the individual symptoms without recognition of the implications of the deeper personality changes involved.

The routine at the Child Guidance Home in Cincinnati lends itself very nicely to eliciting both the more obvious and the more subtle changes in the personality makeup of the child. This greatly minimizes the possibility of overlooking early psychotic manifestations. Every child admitted for study and observation at the Child Guidance Home is looked upon primarily as a sick child (in the medical sense) and as such is subjected to a very thorough and painstaking routine psychophysical examination. In addition, during the period of observation, which may last for several months, daily notations of the child's conduct reactions are carefully recorded by members of the staff. The record, therefore, represents a genetic-dynamic study of the child's behavior under carefully controlled environmental conditions.

From the psychiatric standpoint, the behavior reactions exhibited by the child under these conditions are, of course, of tremendous significance. The nature of his contacts with other children, the character of his reactions during the abandon of exciting games, the quality of his responses to the stimulus of competition give definite indications regarding his mental makeup. It is not long before the

* Personal communication from the author.

distinctive personality makeup of the leader, the bully, the coward, the shut-in type of individual, the epileptic, the psychoneurotic and the schizophrenic become sharply defined. In fact, the commingling of different types of psychopathic personalities makes each type stand out in greater relief. This method of study makes possible the early recognition of the prepsychotic as well as of the psychotic child.

A general survey of the twenty children diagnosed as psychotic, reveals that nine were girls and eleven were boys. The ages ranged from 5 to 17 years. The reasons for admission varied from incorrigibility and delinquency to peculiar behavior. The children were referred by their families, schools, juvenile courts, and various social agencies.

Following the official classification of The American Psychiatric Association, thirteen of these children were diagnosed as schizophrenic, six as psychopathic personalities with psychosis, and one as psychotic with probable organic disease. This last case showed no neurological findings to indicate involvement of the central nervous system, but the history was suggestive of a possible previous attack of encephalitis. If the possibility of organic disease is not taken into consideration, this case would have been diagnosed, on the basis of the psychiatric examination and the subsequent course, as schizophrenia.

The case with possible organic involvement is not included in this analysis.

In group 1 (schizophrenia) there were nine males and four females. In group 2 (psychopathic personality with psychosis) there were two males and four females. This would tend to corroborate the common belief that schizophrenia is more prevalent in boys than in girls.

Table I lists the reasons for admission.

TABLE I.

Reason for admission.	Schizophrenia.		Psychopathic personality with psychosis.		Total.
	Male.	Female.	Male.	Female.	
Peculiar conduct	4	4	..	1	9
Determination of mental status	2	..	..	..	2
Delinquency	3	..	2	1	6
Inability to adjust	..	..	..	2	2

From this table it can be seen that peculiar behavior was the reason for admission in more than half of the cases of schizophrenia, while in the group of psychopathic personalities with psychosis, half were referred because of delinquent behavior. It is pertinent, however, to note that three of the schizophrenics were also sent in because of delinquency. It is significant that only two children of the entire number were referred because of a suspicion of mental disease. This should make those in charge of child guidance work be ever on the alert for symptoms of possible deep-seated mental disturbances, even in those cases referred for ordinary behavior disorders, such as delinquency or maladjustment.

The referring sources fell into the following four groups: family, school, juvenile court, and social agencies.

It is interesting to note that half of the cases of psychopathic personality with psychosis were referred by the Juvenile Court, while only one schizophrenic child was antisocial to the extent that he came into contact with the court. Another point of interest in this connection is that only a very small number (two) of these children were referred for observation by the parents themselves, despite the fact that the children's behavior must obviously have been very unusual. One possible explanation for this may be the unconscious desire on the part of parents to reject the existence of abnormalities in their children. In marked contrast to this attitude of the parents is the understanding shown by teachers and social workers, who recognized the need for psychiatric study in these cases. This speaks well for the mental hygiene propaganda that is being carried on among teachers and social workers.

In eleven children of the schizophrenic group there was an acute onset, although in three of these cases the acute onset was on a chronic background. In all of the children in the psychopathic personality group the disease had a slow and insidious onset, although several of the children had an outstanding episode before admission.

The disease was ushered in by moral, intellectual, and psychic disturbances. The character of the onset in the schizophrenic group showed that every child suffered a moral break. By this is meant that the onset was heralded by either the development of antisocial trends or some form of socially unacceptable behavior, such as

excessive masturbation and the like. The psychopathic personality group showed the same trends.

Intellectual impairment was noted at the very beginning in eleven of the thirteen schizophrenics and in four of the six psychopathic personality cases. The apparent intellectual impairment was evidenced by failure to do satisfactory school work, although previously these children had progressed normally. This impairment was more apparent than real, as judged by the results of the psychometric tests, which will be discussed later.

Psychic changes at the time of onset were noted in eleven children of group I and in only two children of group II. These changes consisted of mood disorders, delusions, hallucinations, emotional instability, and many others. All the schizophrenic children who showed psychic changes at the time of onset, also showed intellectual impairment with resulting school difficulties. Six of the schizophrenic group showed impairment in all three fields, but none of the psychopathic personality cases showed such universal involvement. Changes in two of the three spheres, however, were shown by twelve of the schizophrenics and by four of the psychopathic personality group.

In reviewing the histories of the psychophysical development of these children, it was found that they were relatively free of significant physical developmental abnormalities.

The psychical development histories, however, were very illuminating. All the cases in group 2 (psychopathic personality with psychosis) showed abnormal trends in their emotional, social, and intellectual development. In some of these cases (cases 9, 13, and 16) the abnormalities were evidenced at a very early age. In the schizophrenic group, three cases showed no abnormalities of development whatsoever, ten gave a history of abnormal emotional development, and nine of abnormal social development. It is interesting to note that seven of the schizophrenics showed normal school development up to the time of the onset of the psychosis.

Six of the schizophrenic children in this group showed changes in all three spheres. In other words, twelve of the nineteen cases in the entire series showed developmental abnormalities in all three spheres.

The statement has often been made that most adult patients with psychoses showed manifestations of psychic abnormality in child-

hood. The findings in this study would tend to corroborate this belief. The question naturally arises: Is the simultaneous occurrence of abnormalities in the intellectual, emotional, and social development of the child necessarily followed by the development of psychotic states later in life? A review of the findings in a control group of fifty unselected non-psychotic children who had been studied at the Child Guidance Home, showed that fifteen had exhibited such simultaneous developmental disorders early in life. Seven of these fifteen children are now well adjusted; two are in state institutions for the feebleminded, and five are still problem cases, but show no psychotic symptoms. Only one of these children presented schizoid reactions later in life. Offhand, it would appear from these findings that the simultaneous occurrence of these three psychosocial developmental abnormalities is of no particular significance. A closer analysis of the fifteen cases studied, however, showed that eleven of the children were mentally retarded, two had suffered from acute epidemic encephalitis, one had syphilis of the central nervous system, and one had been diagnosed as a psychopathic personality. In other words, in this group other factors that were present could account for the failure of normal mental and social development.

On the other hand, in this series of psychotic cases there are six children who give a history of simultaneous defect in their intellectual, social, and emotional development without any apparent organic or constitutional factor to account for this occurrence.

Therefore, it would seem fair to say that any child who is not mentally retarded and who has no organic involvement of the nervous system, but who shows a simultaneous break in the normal progression of its intellectual, emotional, and social development, is likely to develop a psychosis later in life and hence should be carefully watched.

A consideration of the family histories showed that in the schizophrenic group there was a much greater incidence of mental disease and emotional instability on the maternal side than on the paternal side. Three of the mothers were psychotic and seven were emotionally unstable, while only one of the fathers was psychotic and five unstable. In five of the schizophrenics both parents were either unstable or definitely psychotic. In the psychopathic personality group, however, all the parents with one exception were either

unstable or definitely psychotic. In this series there were no psychotic siblings in the group of the schizophrenics, and only one psychotic sibling in the group of psychopathic personalities.

An interesting observation regarding the physical environmental factors was that in the group of psychopathic personality with psychosis, the social background was uniformly poor. This was in marked contrast to the schizophrenic group, in which eight of the children came from good homes. This difference, however, did not maintain when the psychical environmental factors were considered. Here, as before, all in the psychopathic personality group had bad backgrounds. This was also true of all but one of the schizophrenic group. Broken homes appeared to play an important rôle in the psychopathic personality group, being present in five of the six cases. In the schizophrenic group it was present in only four of the thirteen cases.

In spite of very careful general physical examinations, no significant physical defects were found in the entire group. The majority of the children had minor physical defects and some had minor neurologic findings. In six of the cases there were endocrine disturbances, but these appeared to have no correlation with the psychosis. The positive laboratory findings were also of minor importance.

In every case studied, a psychometric test was made. In five of the schizophrenic group and in one of the psychopathic personality group there was a scatter of successes. It should be noted that seven of the schizophrenic group rated above normal, one rated as a dull normal, six were rated as cases of probable mental defect, and one rated as feebleminded. It would not be fair, however, to conclude that those children who rated below normal were originally feebleminded, as the psychotic state may have influenced their ability to answer the test questions correctly. This should also be a warning against making a diagnosis of feeblemindedness on the basis of the psychometric determination alone, without first eliminating the possible presence of mental as well as of physical disorders. In the psychopathic personality group, only one child rated below normal.

The psychiatric findings were of great interest. All the children showed disturbances of behavior, mood, insight and judgment. Stream of thought was abnormal in twelve children, ten of whom

were schizophrenic. Memory defects were present in five, four being schizophrenic. Delusions were more frequent than hallucinations. This is especially true of group 2. Sixteen of the series had delusions and ten had hallucinations. Five of the entire group showed abnormalities in all these fields. On the whole, the schizophrenic group showed greater psychic disturbances than the psychopathic personality group. No significant correlation could be made between the intellectual findings as shown on psychometric examination and the degree and kind of psychic disturbance. A fact worthy of note was that none of these children were disoriented.

The children constituting this series have been followed for periods of time ranging from one to thirteen years. Nine of these children are now in Longview State Hospital, one in the State Institution for the Feebleminded, one in a correctional institution, and two are unaccounted. Six children are at large in the community, three of whom are not well adjusted. Of the three who have apparently adjusted well in the community, one is a schizophrenic and two belong in the group of psychopathic personality with psychosis.

The following case reports are presented to illustrate the type of material on which this study is based:

CASE I.—M. M. is a white boy 13 years of age, who had a natural birth following a normal pregnancy. He walked at one year and began to talk at the age of two. As a child he had measles, German measles, and "black pox." His tonsils and adenoids were removed when he was seven. A year later he was run over by a truck and suffered a fractured leg and elbow. A permanent contracture of the right elbow resulted. In 1932, at the age of 12, he suffered from "heat prostration" and was advised to consult a psychiatrist at that time. Of late his eating and sleeping habits have been irregular.

There is no history of mental disease in the family. The mother, age 49, was born in Russia and has never become "Americanized." She is dull, irritable, but industrious. The father, age 66, also a Russian, had been married before, having three children by his first wife and five by the present wife. His health is fair, he is illiterate, a carpenter, but has not been employed for the past three years. None of the children except the patient has presented a behavior problem. Considering their background they have all received good educations and are making excellent adjustments in life. The patient is the next to the last child and was the "baby" of the family for 12 years before the arrival of his infant sister. They own their home which is in a good residential neighborhood, but their standard of living is much lower than that of their neighbors. The patient has his own room. At home he was disciplined by constant scoldings and beatings, but these only antagonized

him the more. He quarreled, struck his mother and sisters, and constantly annoyed his infant sister.

He was referred for study by the Board of Education because of his peculiar behavior reactions while in the 7th grade of school. At that time, he was 13 years old. He had been demoted to a lower section because of lack of effort. Until this time the boy had been bright, aggressive, a leader. However, he had few friends and quarreled almost continuously with the other children. A contracture of his left elbow placed him at a physical disadvantage with others of his age. He felt this rather keenly. At the age of six he began practicing self-abuse. For the past two years he has done this to excess. Last summer he stated he suffered from "heat prostration" at a time when he could not relieve his sexual tension by his usual methods of self-abuse. For this he had been advised to consult a psychiatrist.

On his first admission to the Child Guidance Home in 1932, the boy was loud, boisterous, a braggart, impertinent, aggressive, and disregarded discipline. Five months later he went to the Cincinnati General Hospital, where an impression of a "'Panic reaction' probably on a sexual basis against a background of a possible early Schizophrenia" was made. He was referred back to the Home. At this time he was seclusive, depressed, sat and stared into space, responded only when spoken to, developed many psychoneurotic complaints, had auditory hallucinations, and abused and exhibited himself openly. He showed an unusual knowledge of sexual affairs. Physical examination revealed only the deformed arm, accelerated bone development, and well developed genitalia. The psychological test revealed an intelligence quotient of 97.

From the Child Guidance Home he was sent to the Columbus Juvenile Bureau of Research. Here no additional psychotic manifestations appeared. Shortly after his return home, he became violent, had many delusions, a dissociated stream of thought, showed stereotyped bizarre activities, and was emotionally unstable. In July, 1933, he was returned to the Cincinnati General Hospital. Here an impression of Schizophrenia was made and he was probated to Longview State Hospital where the same impression was made. At that time, he was 14 years old. After a year's stay here the patient, following several satisfactory short visits, was granted a long trial visit at home. At this time the boy had considerable insight into his condition and was as close to his normal self as he had been since the acute onset of his illness. However, he still shows considerable mental instability.

CASE II.—V. B. is a white girl 14 years of age who had a natural birth following a normal pregnancy. She was breast fed for three months, walked and talked at the usual ages. As a child she had measles and diphtheria. Her tonsils were removed when she was 10. Menstruation began at age 13 and was very profuse, occurring every three weeks during the first year, but after this was not remarkable. Eating and sleeping habits have been regular until of late.

The family history is of interest. The father completed the 8th grade, is employed steadily as a chauffeur, is industrious, temperate, and very con-

siderate of his family. He had reactionary ideas concerning the rights of women and did not understand the problems of adolescence, treating his daughter during her adolescence in the same manner that he did when she was a child. The mother died at the age of 39 when the patient was nine years of age. She had never been strong physically and at age 16 had a severe attack of "inflammatory rheumatism" which left her with a heart condition. She had been over-protected as a child and was always very sensitive. During her adolescence she became very morbid and had periods of depression. These continued throughout her life and became more marked during the last two years of her life. At such times she became upset over any incident. She misconstrued remarks of the family, taking offense at them. During such periods she punished the patient unnecessarily. During the last 18 months of her life, the mother was practically an invalid. The patient never showed any affection for her mother and has never mentioned her mother since her death. The mother's father drank to excess. The stepmother is a poorly educated, indecisive individual, fond of the patient, but too lenient with her, although making an honest attempt to understand and help her through her difficulties. There is a half sister, age five, of whom the patient is very fond.

The family have always lived in an attractive residential district. They have a six-room apartment, the patient always occupying her own room. The home is kept immaculate except for the patient's room which is always in disorder.

As a child the patient had difficulty in playing with other children and has never completely overcome this. She was selfish and had to have her way. She showed no affection for her mother, liked her father, and grew to care for her stepmother. These were the only difficulties noted. In school nothing unusual was noted. She was interested and did good work, passing each year with an average yearly grade of 85 per cent. She had reached the 9th grade at the age of 14. In March the teachers noted that her school work was barely passing. The change had been very gradual. The patient suddenly refused to go to school, complained of headaches, and had several "crying spells." A marked feeling of guilt was noted. She admitted to the school teacher that she had had homosexual relations for about a year with one girl, and was frightened by this. The girl became so frightened that she refused to leave home, saying her relatives made fun of her and people on the street laughed at her. One night she refused to undress or go to bed. She awakened the next day and began screaming and tearing her hair. She stated she hated her father and grandmother and repeated over and over the fear of going crazy. She cried a great deal and had a few outbursts of screaming. Her condition remained the same except that she was more depressed and quiet, and refused to leave her bed. Twice she asked her stepmother if she had ever been attacked, and once asked her if a certain teacher at school had been attacked. She constantly repeated, "I don't know what I'm doing or saying. I can't think. I must be going crazy."

When admitted to the Child Guidance Home on May 5, 1933, physical examination revealed some evidence of hypergonadism and a slight anemia. All other physical and laboratory findings were negative. The psychological examination revealed an intelligence quotient of 103.

At the beginning of her stay, the girl was depressed, wandered about aimlessly, was easily irritated, and was slovenly about her person and room. Her statements frequently were contradictory. She admitted having masturbated. During a conversation she admitted that the suffering of her mother always worried her, and that she had resented her father's remarriage. Although she was attached to her father, she had never made a confidant of him. No unusual interests or aptitudes were noted. After many interviews she admitted having had sexual relations with a girl by whom she was completely dominated. She claimed that these affairs were distasteful to her but that she submitted because she was afraid of the girl.

At the Home temporary improvement was noted. However, she soon resorted to her former behavior, becoming noisy and unmanageable. She would repeat the end of sentences, and if permitted would talk on indefinitely in a quiet, silly, unconnected manner. Later she admitted that she had been the aggressor in homosexual practices and missed these, and resorted to masturbation for satisfaction. On one occasion the girl locked herself in the bathroom and put as much water into the tub as it would hold. When seen through the keyhole she was lying on her stomach in the water and at intervals would hold her head under water. Naturally, it was feared that she would drown. No amount of pleading made her get out. Finally it was suggested that she remove the stopper. This she did. When all the water had run out she began to masturbate, acting like an animal, growling and making peculiar noises. It took her a long time to dry herself. During all this time she made peculiar noises. She finally opened the door, but refused to dress, walking about nude. Finally she went to bed and covered herself with a rubber sheet, bed spreads, and pillow, saying that she was freezing, despite a room temperature of 90 degrees. The girl continued to sing, swore frequently, and used vile language. At times she made grimaces and imitated a baby making noises. She walked up and down the hall, letting out blood curdling yells to frighten the other children.

She had several other manic episodes. A diagnosis of schizophrenia was made, although the possibility of a severe form of a psychoneurosis based on a sex trauma was also considered.

In October, 1933, she was sent to a school for delinquent girls. Here she apparently made a good adjustment and progressed well in school. However, she still exhibited peculiar behavior. At times she would appear over-elated, with a silly grin on her face. She was slovenly in her personal appearance. She continued to make a fair adjustment at the school until February, 1935, when it was noticed that she began to giggle and laugh without apparent cause. She was snappy and curt to the other girls. She complained of pain in her head, for which she was referred to the hospital clinic. One day she complained of "everything going round." She screamed, cursed, and talked

irrationally. Delusions of persecution were evident. The girl attacked the housekeeper. It was necessary to send her to the psychopathic ward. For five weeks she was in an acutely excited state, crying and laughing alternately. Her actions were silly and capricious. She was uncooperative and negativistic. At times her behavior was almost infantile, the girl using "baby language," drawing very simple pictures, and sitting in other patient's laps. She was probated to Longview State Hospital, where the diagnosis of schizophrenia was confirmed.

Comment.—It will be noted that both of these children were referred to the Child Guidance Home not by their parents, but by their teachers. This despite the fact that their actions were very peculiar and bizarre and must have attracted the attention of the members of the family. This attitude on the part of the parents cannot be attributed to lack of interest or to ignorance as the general intellectual and social status of the homes was fair in the first case and above average in the second case.

Neither of these children showed the simultaneous occurrence of abnormal psychosocial developmental changes in the emotional, intellectual and social spheres. In the first case there were disorders in two of the spheres, namely the social and emotional, while in the second case changes in the social development only were present.

The onset was apparently acute in both cases, although both children had been under considerable emotional distress for a long period preceding the acute break. The mental symptoms were typically schizophrenic in their nature.

In both these cases there was noted a paucity of positive physical and laboratory findings.

Summary and Conclusions.

An idea that has long been prevalent is that mental disease is comparatively rare among children. Some doubt is cast on this belief as a result of observations made at the Child Guidance Home. An analysis of the first thousand cases showed that two per cent of the children were definitely psychotic. This did not include those children with psychotic manifestations who had an associated organic involvement of the central nervous system. This is a startlingly large percentage and readily leads to the inference that the incidence of mental disease among children may be larger than what has heretofore been suspected.

Of the 20 cases reported, the majority (13) were diagnosed as schizophrenia. Six were classified as cases of psychopathic personality with psychosis. Curiously, there was not a single case of manic-depressive psychosis in the group.

Most of the children in this series were boys, although the difference in number is almost negligible. Their ages ranged from five to seventeen years.

Delinquency was the reason for admission of half of the cases in the group of psychopathic personality with psychosis. This was true to a much smaller extent in the schizophrenic cases. Thus, bad behavior does not necessarily exclude the presence of a psychosis. Hence, when dealing with problem children, the possibility of a psychosis must always be considered, no matter what the original complaint may be.

Very few of the children were referred for study by their parents. This can be attributed either to ignorance on the part of the parents or to a refusal (possibly unconscious) on the part of the parents to recognize the existence of mental abnormalities in their children.

In 11 children of the schizophrenic group, the onset was acute, while in all of the children composing the group of psychopathic personality with psychosis, the onset was slow and insidious. The disease was ushered in by moral, intellectual, and psychic disturbances. All the children suffered a moral break as shown by some form of socially unacceptable behavior. Fifteen of the children showed intellectual arrest as evidenced by their inability to progress normally in school. In 12 of the cases, the condition first manifested itself with the appearance of psychic disturbances.

It is interesting to note that the physical developmental histories in all these cases were essentially negative. On the other hand, the psychical developmental histories are significant in that all of the cases in group 2 (psychopathic personality with psychosis) and in six cases of group 1 (schizophrenia) there was a simultaneous failure of normal development in the social, emotional, and intellectual spheres.

A study of a control group of 50 unselected non-psychotic children who had been studied at the Child Guidance Home showed that a similar arrest in the normal psychosocial development oc-

curred only in those children who were either mentally defective or had an organic involvement of the nervous system.

The simultaneous occurrence of an abnormal trend in the intellectual, social and emotional development of a child, without an apparent organic basis, may therefore presage the development of a frank psychosis later in life.

A predominance of emotional and psychic instability among the mothers of the children in the schizophrenic group was noted, as well as the almost universal presence of constitutional inferiority among the parents of the children comprising the psychopathic personality group. Only one psychotic sibling was noted in the entire series.

In contrast to the uniformly poor physical environmental situation from which the children of group 2 came, were the uniformly good homes from which the schizophrenic children came. Nearly all of the children, however, were subjected to unsatisfactory psychical environmental influences.

The physical, neurological, endocrine, and laboratory examinations were essentially negative. This is in accord with the findings of most investigators. This is in marked contrast, however, to the high incidence of somatic, neurological, and endocrine disorders that were present in the balance of the group of one thousand cases of problem children from which this series of cases was taken.

A psychological examination was made on every case. The findings were not especially significant. Scattering of successes was noted in a small number of cases. Although half of the schizophrenic group rated below average in intelligence, the result need not necessarily be attributed to mental deterioration as the intellectual retardation may be more apparent than real and due to the psychic disturbances. In five of the schizophrenic cases, there was a scattering of successes. This suggests that a low rating on the psychometric test accompanied by a scattering of successes may indicate the presence of some form of psychopathy.

All of the children, on admission to the Child Guidance Home, showed changes in mood, insight, and judgment, although none was disoriented. The schizophrenic group showed greater mental disturbances than the psychopathic personality group. Delusions were more prevalent than hallucinations, fifteen of the children showing delusions and only nine having hallucinations.

The results in these cases are not very encouraging. Only one of the schizophrenic group and two of the psychopathic personality group have made good adjustments in the community. This shows the urgent need for more intensive study and research in this particular field.

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DISCUSSION.

DR. ALBERTA S. GUIBORD (Boston, Mass.).—I should like to ask the doctor if he would tell us a little of the nature of the delusions and the hallucinations, just to get an idea of what they are.

DR. JAMES LEWALD (Laurel, Md.).—It seems to me that Dr. Lurie's paper is particularly timely because there is a tendency to overlook psychoses that occur in childhood. My work, it is true, has been in the subnormal group rather than in the behavior difficulty group, but in a group of selected defectives I found a large number of psychotic children varying in their psychoses from dementia paralytica, the præcox group, some manic-depressives and some of the schizoid type.

In a careful survey of the behavior of all children one will find evidences of early psychoses that can be treated; and I have had favorable adjustments, which is contrary to the findings of Dr. Lurie, in a group of psychotic children, many of the præcox group adjusting under favorable social influences to a better social understanding and social control.

A careful survey of the whole group will undoubtedly show evidence of early paresis in a great many children, and contrary to the usual concept that juvenile paresis is not treatable, we found that with careful early diagnosis and administration of arsenicals and malarial treatment we could arrest the progress of paresis in the juvenile as well as in the adult type of cases.

DR. S. ALAN CHALLMAN (Minneapolis, Minn).—I should like to ask Dr. Lurie what ages are represented in this group, whether many of them had reached puberty.

DR. LOUIS A. LURIE.—I am sorry that the time is too short to read several case reports that are incorporated in the paper. The delusions were those ordinarily seen in psychotic patients. There was nothing unusual about their nature, except that they were possibly more loosely organized. The same was true of the hallucinations.

The ages ranged from five to seventeen. The ages at the time of admission to the Child Guidance Home varied from eight to sixteen. The majority fell in the age range of 12 to 14 years.

HEAT REGULATION IN DEMENTIA PRÆCOX.

Reactions of Patients with Dementia Præcox to Cold.*

(Résumé of Findings.)

By ISIDORE FINKELMAN, M. D., and W. MARY STEPHENS, M. D.,
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The reactions to extreme cold of a group of 50 patients with hebephrenic dementia præcox were observed. The oxygen consumption rates, temperature readings, blood sugar determinations and pulse, respirations, shivering and other responses were noted before exposure, during exposure to water at 60° F. and during rest in bed after the bath. These reactions were compared with those observed in non-psychotic subjects and in a group of chronic encephalitics exposed to the same experimental conditions. The patients with dementia præcox react to cold as a group with a lower heat production than the normals. The drop in temperature in the schizophrenics was greater than in the normals. Some of the non-psychotic subjects maintain their metabolic stimulation for some time following exposure. This continued increased metabolic response was not found in schizophrenia. In the normal subjects there occurs a reactive hyperemia, as evidenced by a drop in the inner temperature, after emerging from the cold bath into warm surroundings. The inner temperature drops, the heat being conducted to the cooled body surface. This "after-effect" does not occur in dementia præcox as a group.

Schizophrenics do not have any respiratory shock on immersion in cold water, as a rule. This transient respiratory phenomenon was observed in most of the normal subjects. In schizophrenia there was an absence of, or a very slight shivering response. Many of the non-psychotic subjects shivered, and some, very intensely. There was no significant change in the blood sugar level in any of the groups, indicating that epinephrine, at least in human

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subjects, does not play a rôle as a calorigenic agent on exposure to cold. Many of the reactions were similar in schizophrenia and in postencephalitic parkinsonism.

We can conclude that in dementia præcox there is a low heat production in response to cold. The heat production is not maintained after exposure and there is no reactive hyperemia. Evidence is adduced that there is a physiologic disturbance in the hypothalamus in schizophrenia.

The observations which are summarized in this paper will be published in detail in the *Journal of Neurology and Psychopathology*.

DISCUSSION.

Dr. S. R. Leahy (New York).—Dr. Finkelman and Dr. Stephens have made a valuable contribution to the metabolic activities of dementia præcox. As might be expected there is a general reduction in schizophrenics to metabolic stimulation as shown particularly by exposure to cold baths. This is in keeping with the response to other forms of stimulation in this disease.

Cameron in 1934 reported a study of heat production and heat control from records of approximately 10,000 temperature readings in 50 schizophrenic and 50 control subjects and also found that at room temperature the internal temperature in the schizophrenic is slightly lower than in control subjects. He found, however, that at room temperature and in extreme cold the mechanism of heat control is more active in the schizophrenic than in the non-schizophrenic group. In extreme heat the mechanism of heat control does not show any weakness in the schizophrenic group. Cameron concludes, therefore, that heat production is lower in the schizophrenic than in the non-schizophrenic group and heat control in the schizophrenic group is more active than in the non-schizophrenics on a compensatory basis.

The absence of respiratory shock on immersion in cold water is in keeping with the response to other forms of stimuli in schizophrenics and in fact seems to corroborate these other findings.

This study has been carefully done and undoubtedly entailed a large amount of work. The whole mechanism of heat regulation is so complex that I believe we need to have such studies corroborated by pathological evidence, of which there is none at present, that the hypothalmus is involved in dementia præcox before one can state definitely that this structure accounts for the findings noted.

I believe further that in the paper the surrounding room temperature should have been stated and that the prevailing climatic conditions should also have been noted.

DR. ROY G. HOSKINS (Boston, Mass.).—I had the pleasure of seeing Dr. Finkelman's manuscript several days ago. Like any other worthwhile, well conducted piece of research, this one raises more questions than it answers. It is a subject that we have been interested in at Worcester for the past three years. At the present time we have rather an elaborate program going on in the laboratory with controlled temperature and humidity. Last year we reported before the Society for Research on Mental Diseases some data bearing on this same general topic, and we are delighted that Dr. Finkelman's findings and ours check excellently.

I think the selection of the subject for investigation and the technique for it have been very happy. There are two or three major approaches to the schizophrenia problem, one of the most promising of which is a study of homeostasis as outlined by Cannon. One can study homeostasis in either of two ways. He can impose a breaking stress and find the point at which the break occurs, or he can impose a graduated stress and find the reactivity at different stages as the stress is imposed. I should say Dr. Finkelman's heroic measures tend rather to approach the breaking stress but fortunately no break occurred.

We have come to the generalization as a result of our work on temperatures and various other things, that what is fundamentally wrong in the schizophrenic mechanism as studied from these points of view is a clumsiness of adaptive responses to changed conditions; that is, we speak of a physiologic clumsiness as characteristic of the group. One has to think here not only of incoordination but of mass effects. If the conception of clumsiness is correct, one would expect to find that schizophrenics in a blundering sort of way and through mass discharges of impulses, would fairly well get by, and schizophrenics do live for a good many years after they acquire the psychoses so they have to be able to compensate at least roughly for changes in environmental conditions.

It is possible that we have here the explanation of the apparent discrepancy between Cameron's results on the one hand and those of Dr. Finkelman and our group on the other. Perhaps Cameron's conditions were set up in such a way as to bring out a rather clumsy mass reaction with the end effect mentioned, whereas if the conditions are set up in a different way, what comes out is a lack of fineness of coordination rather than an ultimate failure of the mechanism.

Freeman and I were quoted as having brought adrenalin into the picture. As a matter of fact, we haven't at any time been concerned with adrenal medulla, but with the cortex.

We agree with Dr. Finkelman in his conception that the hypothalamus is involved in these patients. Our conception of schizophrenia is that it represents a dysfunction rather than pathological change in the hypothalamic region. This might account for adaptational clumsiness, relative inadequacy of the autonomic nervous system, as well as the endocrine system, and we have to think of Bard's emotional center which lies in this same region. If

one thinks of that whole brain mechanism as functioning clumsily, considerable light is thrown upon the mechanism of schizophrenia.

DR. CHARLES F. READ (Elgin, Ill.).—This careful and elaborate study of course represents but a fractional approach to the problem of schizophrenia in general. These fractions will sometime, we hope, be integrated in so far as they may seem worthy of attention.

The cases as selected seem to be representative of a state hospital population. However, I do notice there are many variations of reaction and wonder if it may not be possible to further break down this group by way of classification as to age, type duration of the psychosis, etc., with a view to correlating these results with a study of the personality as a whole.

The conclusions seem to be well argued, especially in view of the results obtained in chronic encephalitics. I am rather interested in the fact that the leukocyte count in the schizophrenics was increased at about the same rate as in the non-psychotics. It is interesting in view of some reports that have been made concerning hemoclastic crises in schizophrenia.

Then one may consider the psychonanalytic approach to this problem, inasmuch as the psychoanalyst contends that the intestinal tract under the control of the autonomic nervous system may be influenced by oral receptive tendencies, etc.; and we may question whether the hypothalamus with its vegetative centers is not also influenced by libidinous drives.

We must pay tribute to the authors, who, in addition to carrying the regular state hospital load, have conducted a study which has involved so much time and care in its preparation.

DR. A. B. MAGNUS (Chicago).—I wonder whether those cases selected for exposure to the temperature changes were not of the group that were previously subjected to continuous hydrotherapy. It is possible that these patients were formerly under a stretch of continuous baths, which are used generally at a temperature of 96, and if so I wonder whether that fact would not have something to do with the lower response to temperature when it is reduced.

Secondly, I want to know whether the differences in response to higher temperature apply to both the normal and the abnormal or schizophrenic group. I didn't catch that. The reader stated that the individuals respond differently to the same temperature, in some individuals there will be a rising temperature to a higher temperature and in others there won't. I wonder if that applies to the schizophrenic as well as to the normal individual.

And third, there are no comparisons of persons who are exposed to higher temperatures in the tub as to whether there is a corresponding increase in the body temperature. The temperature of the skin has always been found to be higher, and in such experiments after careful checking made by myself, we proceed with the reducing of the body temperature. I want to know whether this change or hyperemia that is absent in the schizophrenia is absent in paresis.

DR. ISIDORE FINKELMAN (Elgin, Ill.).—In the paper we reviewed Cameron's report (Arch. Neurol. & Psychiat., 32:704, October, 1934), but on account of the shortness of time, omitted it in the presentation. In addition to what we have said, there are also some errors in technic. For example one error that we did not mention in our paper is that Cameron used the axillary temperature as a skin temperature. Actually it is not a skin temperature as the axilla is not exposed and therefore is not subject to radiation and conduction to the air and is not greatly influenced directly by changes in external temperature. The axillary temperature should be and is taken as an internal temperature.

We mentioned in the paper that we think there is a psychophysiologic interruption in the hypothalamus in dementia præcox. We have nothing to add to the remarks of Dr. Hoskins as we agree with everything he said. It is significant that the præcoxes had a wide variation. We studied them as a group and not as individuals as Dr. Read mentioned.

With reference to psychoanalytic interpretations, we are of the opinion that psychologic interpretation of physiologic changes have their place and may be indulged in by those with a psychologic bias in the interpretations of dementia præcox.

Normal persons have a climatic stimulability—that is they are stimulated to greater effort or energy in cold climates. Note the advances in civilization in temperate zones as compared with the torrid regions of the earth. Schizophrenics are poikilothermic, their temperature varying to some extent with the environmental temperature. It is an expression of their defective homeostasis.

In answer to Dr. Magnus' question the patients did not have any hydrotherapy before the experiments.

ALLERGIC REACTIONS IN MENTAL DISEASES.

By JOSEPH A. BEAUCHEMIN, M. D.,
Connecticut State Hospital, Middletown, Conn.

The pathologist in a mental hospital is often called upon to be of assistance in the diagnosis of skin diseases, the cause for which may be obscure. In many cases a hypersensitivity to food, plant, endocrine or bacterial proteins has been found in the tests made in our laboratory which gave definite information as to the causative agent, while, in other cases, the patient showed no hypersensitivity. These skin tests were also carried out on employees in our hospital, as requested by the physicians, and in going over the records, there was noticed a marked difference in the reactions. It appeared that the employees very rarely showed a hypersensitivity to any of the proteins, or would give a positive allergic skin-reaction to one or two proteins definitely suspected already as the causative factor of the symptoms present. The patients, on the other hand, gave positive tests to a few proteins in practically every examination by this method and most of them showed a hypersensitivity to more than one class of the proteins.

While there are many hypotheses on the nature of allergic phenomena the consensus of opinion still seems to favor the theory that the endocrine system, in some unknown state of imbalance, may be at fault in these conditions. We also learn that the allergic individual, in addition to acute symptoms such as asthma, hay-fever, diarrhea, migraine and different skin eruptions may exhibit some mental excitement and nervousness or a pseudo-prostration probably dependent on the patient's mental make-up. Many of these persons, it has often been noticed, have physical characteristics pointing to some indefinite endocrine dysfunction, such as fine, silky hair, dry skin, dry mucous membranes, menstrual disorders, and many others.[1] Likewise may we state that patients, suffering from mental diseases of the chronic and malignant types, give evidence, in a great many cases, of physical signs and bodily conformations suggestive of underlying, basic, endocrine disturbance.

With these ideas in mind we decided to test a series of patients suffering from different types of mental disease using, as a standard of comparison, the reactions of normal mentally healthy persons. The abnormal subjects were chosen from our patient population at the Connecticut State Hospital in Middletown. They were divided according to diagnosis into six groups, namely: epileptic psychosis; manic-depressive psychosis, manic type; manic-depressive psychosis, depressed type; dementia præcox; hebephrenic, catatonic and paranoid types. The series diagnosed as epileptic psychosis comprised 60 men and 40 women, approximately all the patients of this class in our institution. The series diagnosed as manic-depressive psychosis, of the manic type, comprised 50 men and 50 women. The same proportion of patients were tested in the depressed type of this class of psychosis. The series of patients suffering from dementia præcox comprised 600 individuals, that is, 200 diagnosed cases in each of the three subgroups of this class, hebephrenia, catatonia and paranoia, 100 or one half of each 200 being women. Each patient was given the same number of skin tests using a representative number of proteins belonging to the classes of foods, plants, bacteria and total endocrine substances and harmones, as shown in the accompanying charts. We believe that these different classes of proteins cover the average, well-balanced hospital diet, the more common bacterial infections, an unfortunately inadequate number of specific endocrine and harmone proteins due to inability to isolate these substances, and the usual great offenders in the grass and pollen class. (See Charts I and II.)

CHART I.

CLASSIFICATION OF PATIENTS TESTED.

Group.	Classification.	Type.	Men.	Women.
1	Epileptic psychosis		60	40
2	Manic depressive	Manic	50	50
3	Manic depressive	Depressed	50	50
4	Dementia præcox	Hebephrenic	100	100
5	Dementia præcox	Catatonic	100	100
6	Dementia præcox	Paranoid	100	100
7	Normal healthy individuals		50	50

CHART II.

ALLERGIC RECORD SHEET.

Name: No. ——

Diagnosis:

Physical Characteristics and Condition:

SKIN REACTIONS TO FOOD, BACTERIAL AND PLANT PROTEINS:

	Result.		Result.
1. Lamb.		34. Coffee.	
2. Beef (muscle).		35. Milk.	
3. Pork.		36. Cocoa.	
4. Beef Fat.		37. Tea.	
5. Pork Fat.			
		38. Cod.	
6. Oatmeal.		39. Salmon.	
7. Barley.			
8. Bran (whole wheat).		40. Egg-yolk.	
9. Flour.		41. Egg-white.	
10. Buckwheat.		42. Gelatin.	
11. Corn.			
		43. Ovarian substance.	
12. Rice.		44. Adrenal substance.	
13. Turnip.		45. Thyroid substance.	
14. Lettuce.		46. Parathyroid substance.	
15. Parsley.		47. Pituitrin.	
16. Carrot.		48. Antuitrin-S.	
17. Asparagus.		50. Testicular substance.	
18. Cabbage.		51. Corticin (adrenal cortex).	
19. Spinach.			
20. Lima-bean.		52. Staphylococcus albus.	
21. Horseradish.		53. Staphylococcus aureus.	
22. Potato.		54. Streptococcus viridans.	
23. Beet.		55. Streptococcus non-hem.	
24. Pea-bean.		56. Pneumococcus I, II, IV.	
25. Cauliflower.		57. Micrococcus catarrhalis.	
26. Tomato.		58. Micrococcus tetragenus.	
27. String-bean.		59. Bacillus coli.	
28. Rhubarb.		60. Friedlander's bacillus.	
29. Apricot.		61. Ragweed.	
30. Strawberry.		62. June grass.	
31. Prune.		63. Timothy.	
32. Apple.		64. Golden rod.	
33. Pear.			

Remarks:

After much experimentation with different methods of skin testing the technique selected for the tests, we believe, was the most simple, reliable, and while being fairly rapid, also gave uniform results. The great number of tests on each individual necessitated the use of a large area of the body surface. For this reason the back of the patients was selected as the site of preference for this clinical procedure. The part was exposed from the neck to the waist and the subject lay prone on a table in a room flooded with daylight. Five to ten patients could be tested at a time as the technique lent itself well to such a system of action. The back was gently washed with cotton-batting saturated with 40 per cent ethyl alcohol and allowed to dry. Using an ordinary vaccine needle, a sterile one for each subject, rows of scratches for the whole series of tests were made. These were deep enough to break through the epidermis but not to draw blood. They were about one-half to three-quarters of an inch in length and in rows of five. Care was taken that they were spaced at least one and a half to two inches from one another. Sterile normal saline solution was the diluent used in these cases and proved to be more convenient than sodium hydrate due to its slower rate of evaporation. One drop was placed on each scratch with a sterile eye-dropper. One protein substance was mixed with the saline solution on each scarification, with a sterile toothpick, one of the latter being used for each separate protein. The quantity of the test substances used did not matter in the results obtained, but, for economical purposes, the amount which could be taken up from the protein vial on the broad end of the toothpick was the portion employed for the test. The liquid endocrine substances, that is, adrenalin, antuitrin-S and adrenal cortex, were applied on the scarifications without the saline diluent. When the mechanical irritation of the vaccine-needle produced any redness in the surrounding skin, this was allowed to disappear, which it usually did in five to ten minutes, before the saline diluent and the protein were applied. The test substances were not allowed to become dry but more saline was added keeping the proteins moist during the time necessary for the reactions to take place. The results were read in about 10 to 20 minutes after the application of the last test-protein. There were some patients who reacted more slowly and with less intensity than others and they were given a reaction period of 30 minutes before the tests were read.

A positive result was recorded as one giving a definite wheal with or without the pin-point vesicles, but with the pseudopod projections and the rough raised surface, characteristic of an intensely positive test. There were other showings in which the redness extended about a quarter of an inch on each side of the scarification and these were not estimated as true positive reactions but as pseudo-reactions. Many authors believe that these may be considered as evidence of a slight susceptibility to the protein substance, but not of a degree sufficient to produce allergic symptoms in the patient. It was also found that, in the case of the adrenalin, the total adrenal substance and the adrenal cortex, there appeared on the skin an area of vasoconstriction which whitened the epidermis at and around the scarification. If, however, there developed an area of redness or a vesicular wheal with pseudopods around this small white spot the test was considered positive.

The protein substances employed for these procedures were all of the dry, powdered, desiccated type, as prepared by many large, reliable firms manufacturing drug and biological products. The adrenalin, antuitrin-S and adrenal cortex were, of course, in the liquid form.

While the classification of the results was rather difficult in an empirical study of this nature, we believe that they were interesting and that the tests could be developed to serve a definite purpose in the study of mental diseases. They are of some assistance in the diagnosis of skin diseases and could possibly be so in the determination of the allergic factors in the psychoses and of the bearing that an endocrine imbalance may have on the mental development of the child and the adult from the standpoint of mental diseases. They have led us to further studies in laboratory techniques and the elaboration of simple tests which would establish a normal biological endocrine-balance according to demonstrable amounts and relative proportions of the various known and isolated harmones present in the body fluids.

Dividing the patients tested into the six groups shown in the charts the results have revealed fairly constant types of reactions to the different classes of protein substances.

Group I, the epileptic, psychotic individuals, in all cases, gave proof of a definite allergic tendency.

To the meat proteins and fats, 80 per cent of these patients showed positive reactions. There were many pseudo-reactions in the 20 per cent who did not react definitely in a positive manner. This is interesting when one recalls the different dietary treatments advocated in the past for these afflicted people.

To the cereal class of proteins, 64 per cent of the patients were sensitive to one or more of these protein substances.

To the vegetable, fruit and miscellaneous classes of proteins these patients gave rare and irregular reactions of little importance, except for the determination of susceptibilities peculiar to the individual.

To the class of endocrine and hormone proteins, the tests showed a high percentage of positive reactions to total adrenal substance (82 per cent), to total thyroid substance (52 per cent), and to parathyroid substance (65 per cent).

To the bacterial proteins, there were no group reactions of note except to the colon bacillus, to which 70 per cent of these patients gave positive results.

From these findings it appears that patients suffering from epileptic psychosis exhibit an allergic phenomenon common to them as a group and there are indications of disturbances in the power of assimilation and digestion by their body tissues of proteins from meats, of fats, and the proteins of cereals. There would also appear to be a disturbance in the function of the thyroid and parathyroid glands, possibly a hyperfunction, as shown by the fact that a series of the patients of this group and others giving a positive reaction to thyroid proteins had a basal-metabolic rate of plus 18 to plus 35. We have no clinical test to ascertain a hyperfunction of the adrenal and pituitary glands, and biological tests to check up these results did not give uniform findings in the animals injected as for the Ascheim-Zondek reaction.

Group II and III, comprising the two types of manic depressive psychosis, did not give results showing that these individuals were truly allergic persons, but, in their reactions to the different endocrine proteins they exhibited peculiar group-characteristics special to their class of mental disease as a whole and to their types of psychosis also. There were no group-reactions to the proteins in the food and plant classes. The results of the tests with these substances were typical of the occasional hypersensitivity found in

normal subjects. The interesting point was in the classes of endocrine and bacterial proteins. In patients suffering from the manic type of manic depressive psychosis there were noted positive findings in 70 per cent of the cases with total suprarenal substance, in 35 per cent with total thyroid substance, and in 45 per cent of the cases with antuitrin-S. Those diagnosed as the depressed type produced positive wheals with total suprarenal substance in only 8 per cent of the cases, with adrenal cortex in 58 per cent and with the pituitary substance and antuitrin-S in 30 per cent of the total number. There was an increase in the percentage of positive tests with ovarian substance in women and with gonadal substance in men, to 22 per cent and 20 per cent respectively. Many pseudo-reactions appeared with the latter substances which were discounted.

From these findings it would appear that patients suffering from the manic type of manic depressive psychosis are not definitely allergic individuals but may have a complex, endocrine imbalance, characterized, in the manic type of patients, by a possible hyperfunction of the suprarenal and pituitary glands which would, in turn, seem to exert a stimulative effect on the thyroid and sex glands. The hyperfunction of the adrenal cortex would be the indicated conclusion, along the same line of reasoning, in the depressed type of cases with a stimulative effect on the pituitary gland. There was a slight difference in the reactions to the bacterial proteins, the depressed type of cases giving positive tests in a somewhat greater percentage of subjects, which would lead us to believe them more susceptible to infectious agents than the manic type of patients.

Groups 4, 5 and 6, included the three types of dementia præcox. As a class, these groups showed no definite allergic make-up. There were no group reactions to the proteins belonging to the classes of foods, plants, nor to the class of miscellaneous proteins. The positive tests appeared only occasionally denoting simply the individual hypersensitivities.

To the proteins of endocrine origin the three types of dementia præcox, as a class, brought out positive tests to thymic substance on an average of 40 per cent with many pseudo-reactions which were discounted, to ovarian substance in 32 per cent of the women, to testicular substance in 45 per cent of the men, to antuitrin-S in only 8 per cent of the women with many pseudo-reactions present; but in the men the antuitrin-S gave 31 per cent positive tests also

with many pseudo-reactions. The women did not react to testicular substance and the men were negative to ovarian substance. The three types of dementia præcox, taken singly as groups of patients, showed only a slight difference from one another in the percentages of positive reactions but the results demonstrated the same general trend in all the types.

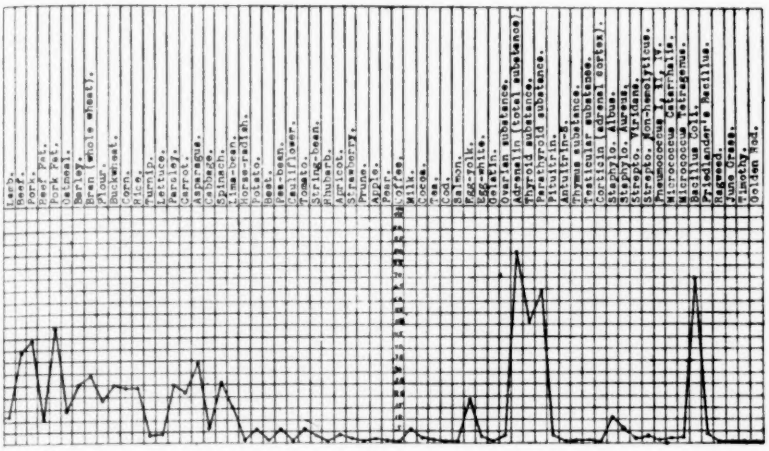
From the above findings it would seem possible to infer that there may be, in these cases again, an endocrine disturbance of some sort which may or may not be a concurrent symptom or a causative factor in the mental disease. The interesting point is the increase in the percentage of positive reactions to the thymic substance which was not met with in the other classes of mental diseases. These patients would also seem to show an increased susceptibility to infectious agents generally and this seems logical when one thinks of the many minor infections met with on the average chronic, hospital ward, in the malignant cases of dementia præcox.

The standard of comparison, as we already mentioned, was a series of 100 normal, mentally-healthy persons, some taken from the occasional routine cases coming to the laboratory, and some 40 volunteers selected for this special instance. The results showed an occasional positive test according to individual hypersensitivities. In two cases there was a reaction to ovarian substance, both being in women. The tests in this series revealed a very marked difference in the findings. The percentages of positive reactions ranged from 1 to 2 per cent in the occasional sensitiveness to individual proteins as against the results stated above for the mentally-sick patients.

In reviewing the data in these experimental studies we gain certain impressions which cannot take the form, as yet, of definite scientific conclusions. There are still many imperfections in the standard laboratory techniques of skin-testing with proteins. The latter are not always absolutely biochemically pure and uniform, especially in the case of endocrine and hormone substances, and the present methods of reading the reactions call for much improvement and some standardization. There is a great need for a simple laboratory test, less complicated and more accurate than the biological Ascheim-Zondek animal reactions, for the estimation of the hormone content of the body fluids. Such a test could prove or disprove the value and efficiency of the commonly used allergic skin reactions and could, itself, be of value in the determination of

CHART III.

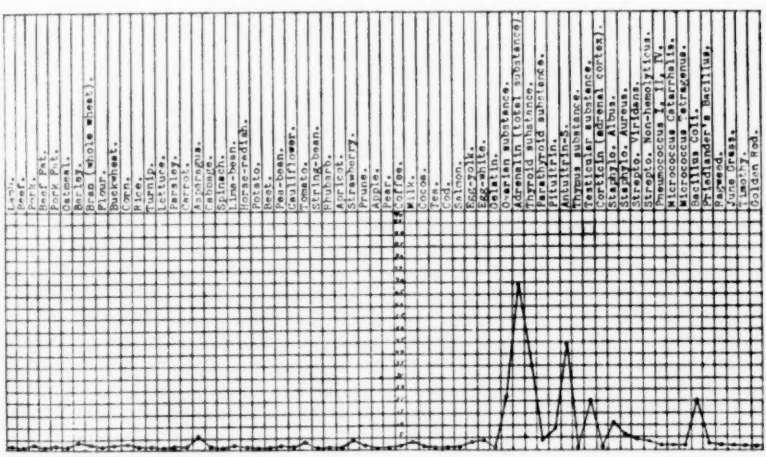
Epileptic Psychosis.



Patients of this class are definitely allergic. Percentages are still higher when the reactions are considered in relation to classes of proteins instead of in relation to individual proteins.

CHART IV.

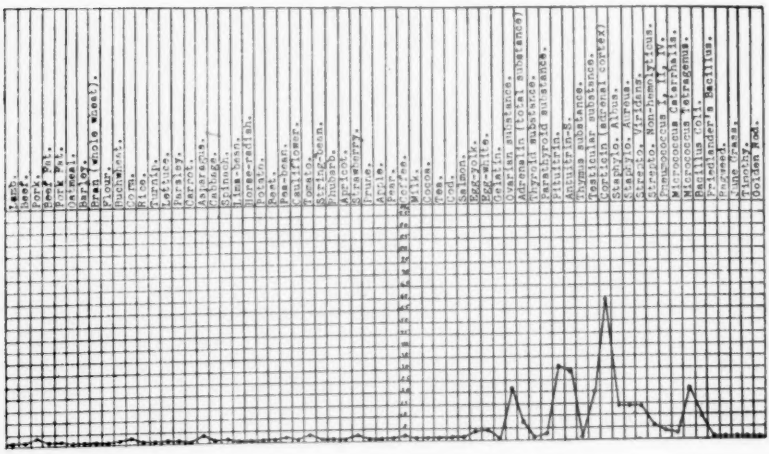
Manic-Depressive Psychosis, Manic Type.



These patients are not allergic. There is an indication of some endocrine disturbance. Men do not react to ovarian substance and women are also negative to testicular substance. Percentages given concern each sex in relation to its own sex gland protein.

CHART V.

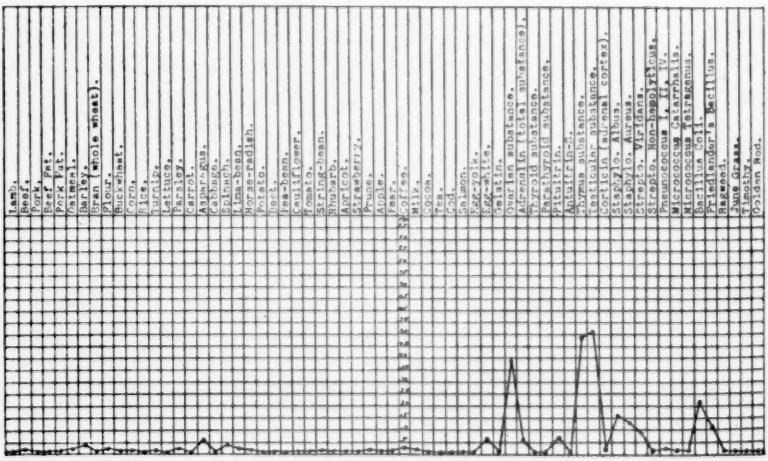
MANIC-DEPRESSIVE PSYCHOSIS, DEPRESSED TYPE.



Hypersensitivities point to an endocrine disturbance of the pituitary and the adrenal cortex. There is an increased sensitivity to bacterial proteins. Ovarian reactions were in women, testicular reactions in men.

CHART VI.

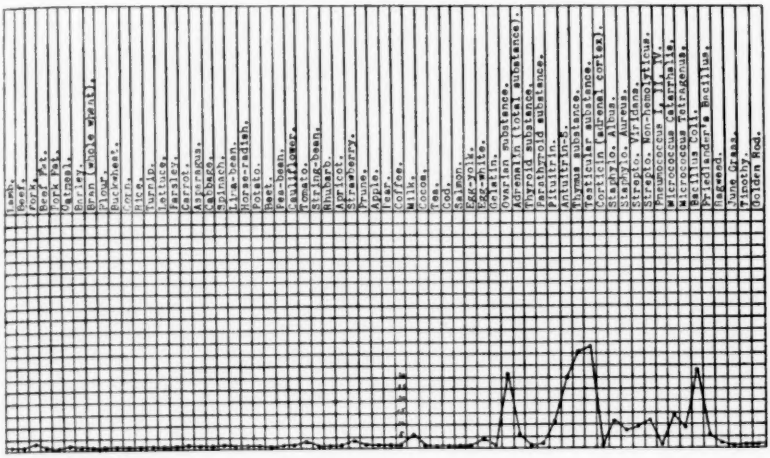
DEMENTIA PRÆCOX, CATATONIC TYPE.



Reactions in these patients indicate an endocrine disturbance involving the sex glands and the thymus. There is also increased susceptibility to bacterial proteins.

CHART VII.

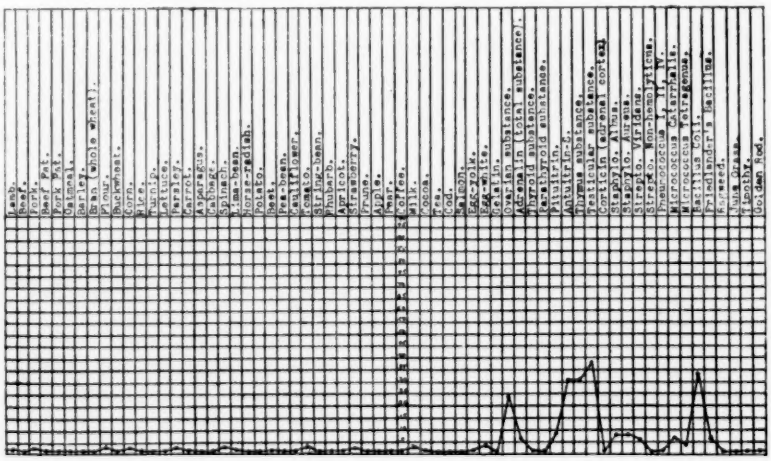
Dementia Præcox, Hebephrenic Type.



Each sex shows reactions to thymic substance and its own sex gland protein. Reactions to bacterial proteins are quite increased in this group. Dementia præcox patients as a class seem to show an endocrine disturbance pointing to the thymus gland.

CHART VIII.

Dementia Præcox, Paranoid Type.



Each set shows reactions to thymic substance and its own sex gland protein. The male sex shows also an increased susceptibility to antuitrin.

physiological endocrine functions in the healthy and in the mentally-sick. As there is an ever-increasing number of individual hormones being isolated, one by one, from the different histological portions of these glands, these skin tests should be further elaborated with the new products in the hope of gaining more detailed information. Nevertheless, it is interesting to note that patients suffering from epileptic psychosis are evidently allergic individuals reacting to many classes of proteins at the same time. They also seem to exhibit certain evidence of endocrine imbalance pointing towards a definite set of glands of internal secretion, namely, the suprarenal, the thyroid and para-thyroid glands. The patients suffering from a manic-depressive psychosis are evidently not allergic subjects with the many idiosyncrasies to the different classes of proteins simultaneously, but they show a number of reactions giving the impression of an endocrine disturbance, each type with its own trend of dysfunction. The same inference is drawn from the tests on the patients in the class of dementia præcox. In the light of our present knowledge, the establishment of the endocrine factors in mental diseases could give indications for treatment of individuals and groups. (See Charts III, IV, V, VI, VII, VIII.)

I wish to express my thanks to Dr. R. L. Leak, superintendent at this hospital, for his encouragement and his wholesome support in the conduct of these experiments.

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DISCUSSION.

DR. HARRY S. BERNTON (Washington, D. C.).—Dr. Beauchemin and I are in accord in that we both feel the necessity of studying from the allergic standpoint patients who are confined to the state institutions for mental diseases. Several years ago, I sought permission to study the so-called "allergic cases" amongst the patients of St. Elizabeth's Hospital. To my great surprise I was informed that there were very few cases of hay fever or asthma or any other allergic condition among the inmates. There was a far greater percentage of allergic cases among the personnel and medical officers, some of whom were patients of mine. I regard this fact as significant. It confirms Dr. Beauchemin's observations relative to the very few hay fever cases amongst the inmates of his institution.

Allergy has been defined as "hypersensitiveness," "idiosyncrasy," and "altered reactivity to environmental agents." The best definition I know of is that by Jonathan Hutchinson, an English student, who defined allergy as "individuality run mad." Now, it is indeed paradoxical that in those cases in which individuality has "run mad," literally speaking, there are so few cases of hay fever, asthma, and other allergic diseases.

Dr. Beauchemin's report shows evidence of a good deal of industry. In studying his results, I have been impressed, first of all, with the large number of positive reactors to foods in the epileptic group—80 per cent. It has been estimated that about ten per cent of the population is allergic, and of that ten per cent possibly one-quarter may show evidence of sensitiveness to foods. But here we have a group of individuals, 80 per cent of whom show a sensitiveness to foods. The clinical significance of this finding must be determined by clinical trial. If abstinence from the positive reacting foods by the patients diminishes their epileptic seizures, the conclusion is warranted that their seizures are in part due to food hypersensitiveness.

Skin reactions to food proteins have furnished a subject of debate amongst allergists. It does not necessarily follow when an individual gives a positive skin reaction to a food that he is clinically sensitive to that food. For example, a child may show a positive skin reaction to carrots and yet may eat carrots with impunity. On the other hand, he may not show a skin sensitiveness to egg albumen and yet clinically be very sensitive to eggs, as evidenced by hives or by an asthmatic attack. Dr. Alexander Rowe, a distinguished student of food allergy, is of the opinion that skin tests are of less importance than a good clinical history and clinical trial.

I have had the opportunity of testing a large number of individuals with about 30 of the pure proteins which have been isolated from foods by the protein chemist. Curiously enough, no more positive reactions with these chemically pure substances have been obtained than with the ordinary commercial preparations upon which Dr. Beauchemin has depended. That is no reflection on anyone. When a protein extract of a food is prepared and placed upon the patient's skin, that test substance is by no means identical with the substance circulating in the blood which has been derived from that same food. The latter is a product of complicated chemical processes in the mouth, in the stomach, in the intestines and in the liver. I, therefore, feel that the clinical interpretation of these findings must be made with some caution.

Dr. Beauchemin states, also, that in reviewing the findings of his experimental studies, the impression gained cannot take the form as yet of definite scientific conclusions. It is evident that he is conservative, and justly so. When he indicates in his charts that some of the manic-depressive cases show a positive skin reaction to ovarian substance, it does not necessarily follow that there is an endocrine disturbance or an endocrine imbalance in those particular individuals. The conclusion may be drawn that the individuals in question show a skin sensitiveness to ovarian substance of animal origin.

I desire especially to emphasize the differences in reactions which may ensue from differences in chemical composition. These differences can be

demonstrated very readily. A patient, sensitive to celery, may have an eruption of hives on the lips or buccal mucous membrane or at other points of contact. That same patient may consume the celery after it has been cooked without any difficulty. A child may be sensitive to lactalbumin, yet he may drink boiled milk without any embarrassment. The foods in question have been submitted to very simple chemical changes, but the difference in clinical reactions is most marked.

I feel that the investigation would be of greater value if human subjects were tested with extracts of glandular substances of human origin. These could be secured at autopsy or at the surgical table. If I were to test a rabbit with adrenal gland from a human being and if a positive skin reaction were obtained, I would not be justified in concluding that the rabbit is suffering from the various mental upheavals from which mere man occasionally suffers.

There is, nevertheless, an important connection between certain endocrine states and the allergic state. It is only a connection and one hardly explains the other. For example, there are women in whom asthmatic seizures appear at the time of the menses. The English observers were the first to employ the term "menstrual asthma." There are also women who lose their asthma during pregnancy. Moreover, some individuals have a marked exacerbation of hives during the menstrual period. All of these clinically important observations invite solution and interpretation along such lines as Dr. Beauchemin has suggested.

Dr. Joseph A. Beauchemin (Middletown, Conn.).—Dr. Bernton remarked that in testing with these endocrine proteins, a positive test in the human skin, with ovarian substance for example, would mean that the patient (and I agree with him) is susceptible to a protein derived from the animal ovarian substance. I experimented with a few skin tests on animals with a similar idea in mind. Grafting guinea-pig ovaries in female guinea-pigs and sensitizing some males with proteins from the same ovaries, I produced definite positive skin reactions in these operated and sensitized animals with the extracts from other guinea-pig ovaries. I could not go on indefinitely with these controls at the time, but this was done for my own satisfaction.

At present, I am not sure that human ovarian proteins would give definite, characteristic reactions in human skin and animal skin, and vice-versa. There is much work to be done in this direction.

PSYCHOTHERAPY OF ADOLESCENTS.

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The case records of adolescents seen during the past seven years in private and clinic practise, in a home for delinquent girls and in a private school, were reviewed from the standpoint of treatment, methods and results. Treatment was based, where possible, on the following diagnostic scheme:

I. Simple maladjustments with no evidence of neurotic difficulty, the problem being solely one of a normal reaction to an unsuitable environment or lack of opportunities for adequate social training.

II. Difficulties arising out of problems such as congenital alexia and mental defect, with or without an accompanying neurotic conflict. The above two divisions will not be discussed.

III. Neurotic or pre-psychotic problems. Treatment plans were based here, as is usual in any case, on types of conflict, degree of stability, intelligence, symptoms and capacity to make a transference. On this last factor, treatment, as distinct from custody or other changes in environment, depends. The lack of this capacity has been taken as a basis for classification rather than the use of such terms as constitutional psychopathic inferior or psychopathic personality. Patients not capable of a transference have been considered as arrested in their development at the narcissistic level. There is no conflict and retreat to this level as in the schizophrenic, but apparently there is an inability to develop, and whether this is constitutionally determined or not can only be surmised. This will be discussed in a later paper. In contrast, those patients that had been classed as psychopathic constitutional inferiors who have been found capable of developing a transference have responded to treatment when it has been directed at unconscious levels.

Another treatment problem of particular importance is the difficulty met with, in some cases, in verbalizing the emotions and successful treatment often depends on an understanding of the factors involved in this problem. In work with children the play technique takes care of this difficulty. This is obviously unsuitable

for these later years. It has therefore often been necessary to undertake a procedure different from the orthodox analytic one in order to give the amount of reassurance necessary to make treatment possible. Aided by the history which is usually available one can at the start discuss the presenting problem with a casual and impersonal attitude which often surprises the patient into cooperation, even though he has come unwillingly. But when a conflict is very near the surface, particularly in the early stages of treatment, and the guilt very strong, the patient may be in an agony of difficulty over the verbalization, even to himself.

A case in point is that of a 13-year-old girl of an intense shyness whenever anything personal was touched upon. She had periods of depression, in one of which she attempted suicide. These alternated with periods of outlandishly awkward, aggressive behavior and uncontrollable giggling. She had been sent away from home at her father's request. At first, contact even at a superficial level was difficult, during both phases, as talking seemed almost impossible. She could not be interested in drawing. Since I had known her sisters and knew the background of her own problem at the start, I practically carried on a casual monologue about the superficial aspects of her family life. Gradually she told her dreams, thinking that they were a great joke, and then came to talk of daily happenings and of her family in a superficial way. Very casually when the dream material seemed to indicate it, I mentioned her jealousy of her brother and resentment of her father's preference for him. Thereupon I was called a mind-reader. She stated with considerable feeling that she couldn't have told it herself, so how could I know it otherwise? I explained how I had deduced it from her dreams and from what I knew about other people's reactions under similar circumstances. Actually it was obvious that she was too guilty over her unconscious death wish toward both to express to herself even a small quota of her conscious negative feeling toward them. Very slowly she began to associate, but with great resistance that was very difficult to analyze. It always seemed necessary before entering into any new phase to relieve her depression resulting from the guilt by giving her a general idea beforehand that I knew what it was about as gleaned from her dreams, and to give her the impression that I accepted it entirely uncritically, before she could begin to work it out in detail herself. One had to guard against her wish to play a dominating rôle and to force me to do all of what she thought of as "work." This had to be analyzed each time it came up.

This case may also be used to illustrate a complication in the transference situation common to adolescent patients if there is an actual present rejection of the parents by the patient, in addition to a neurotic conflict with them in the past. At this period the help of

an adult is still needed, because of lack of years and experience, quite apart from any neurotic dependence. In this case, as frequently happens, there had been no satisfactory emotional contact with parents or parent substitutes; but it was possible to provide one by the intelligent cooperation of a social worker. In other cases it has been necessary at times to have the physician assume an active rôle as well as the passive analytic one. This does not cause difficulty as long as the physician can keep the neurotic situation and the real one clearly delineated, neither does the use of the physician as the ego ideal as long as the counter-transference is clear.

This is illustrated by the case of a boy of 18, a freshman at college, who was terrified of his father and too resentful of the over-solicitude of his mother to have any real contact with her. He had had no friends at his boarding school except for a partial father substitute in the person of the instructor in his major interest, but with whom he lost contact on leaving school. Until he was far enough along in treatment to achieve relationships, considerable time was spent in discussing matters not of neurotic origin but which he had not had the time and experience to think through and solve for himself. This was not used later as material for resistance, as advice was not given, but the method of the platonic dialogue was used, drawing the solutions from him by making the questions clarify the issues.

The problem in adolescent therapy cannot therefore be dismissed with a statement of the difficulty in verbalizing emotions. Postponement of treatment on this ground, in the hope that the difficulty will be outgrown, is not indicated unless one is sure of the superficial nature of the conflict. There is no evidence that the inability to verbalize is due to intellectual immaturity. The chaos which makes an expression of ideas associated with the emotion so difficult seems to be created by the sense of guilt and anxiety which makes intolerable the idea of criticism from within or without. To a certain extent, to be sure, the lack of experience in talking about feelings adds to the difficulty. While it is true that fear of criticism must be removed in any transference situation, such fear is markedly exaggerated in the adolescent, and therefore more reassurance is necessary than with the adult. This may be due, in part, to the fact that the adult comes more often of his own accord. But it must also be remembered that the adolescent has not had time to get the experience in living which even the most neurotic adult has had, which gives him a certain amount of assurance to draw upon. When the adolescent slowly and often fearfully recognizes

that there really is such a thing as a broad tolerance and a respect for the individual with all of his vagaries, the chaos begins to resolve and thoughts and feelings begin to take form and find expression.

This confusion is obvious to anyone dealing with adolescents whether they are " normal " or neurotic and is understandable. In the rapidity with which changes are taking place and development proceeding, it is comparable to the first six years of life. In that period the task of the individual is the modification of the instinctual wishes to meet the demands of the parents and their substitutes, and to learn to accept substitute gratification for instinctual desires. Between the superego and the instinctual forces a certain equilibrium becomes established and the ego structure has obtained a certain amount of integration. But at the onset of puberty and actually for a period before, the ego ideal begins to change at an accelerated speed as the individual takes cognizance of a much wider and less personal world than that of his family and small circle of friends. He begins to accept as ego ideals those not so intimately and personally associated with him. He also feels that he is exercising a degree of choice, in contrast to the early years of his life when standards were thrust upon him. In addition he is coping with instinctual forces of which he was less acutely aware before, and this brings with it a new awareness of self. All of these factors afford new opportunity for conflict.

The equilibrium previously established may be upset in varying degrees depending on the stability of the past ego organization. It should be kept in mind that what is happening appears to be not a simple growth by accretion, as it were, but a reorientation involving a certain amount of breaking down and rebuilding, and learning by trial and error. The acute pathology occurs when there has been no real organization of the ego but a superficial taking over of the parental ideal, without integration with the instinctual forces. Such structure as has been achieved falls apart under the strain of the growing process. The situation in the adolescent may be likened to a battle going on on two fronts. The instinctual drives arising at this period are at odds with the old superego on one hand, and the old superego may be at odds with the new ego ideals. In other words, the picture that one takes over of the parent ideal is not the same at twelve years of age as at five or at two years. From this

arises the feeling of uncertainty and groping which is so obvious. In addition, if the new and old ideals are markedly at variance, guilt and anxiety arise. The slavish imitation that one sometimes sees at this period is an indication of this uncertainty in ideals, as is the alternating rejection and clinging to the parental relationship.

Another prominent factor in the problems of adolescents is the obvious one of the re-emergence of the sexual feelings. It should not be overlooked that the difficulty here, as at earlier periods, may arise not because of the instinct itself or even its indulgence, but because the pleasure derived increases the sense of guilt. This may be particularly marked in cases in which the idea of parental indulgence in sexual relations has been strongly rejected.

This is illustrated by the case of a girl of 16 with a stepmother each jealous of the other. The patient seized an opportunity for an affair with an older married man whose wife was away. Stealing money from the stepmother occurred, and increased markedly after the affair was found out and stopped. A facial tic also appeared for the first time. The eyebrows were raised in an affected surprised fashion and the eyes then rapidly blinked. The patient had refused to accept even the possibility of any conjugal happiness between the father and stepmother and overemphasized their quarrels. Her guilt was marked over her pleasure in her own relationship with her lover, and the fact that later she at times took the initiative. The tic recurred whenever these topics or the stealing were mentioned or when the stealing occurred. When the situation with the parents was worked out, both tic and stealing stopped. She has had normal adolescent friendships with boys of her own age since.

A constructive feature in the treatment of adolescents that one does not see so clearly in work with children is the growing sense of responsibility toward the home and family. This has been particularly marked, probably because of their situation, in the girls who have been removed from their homes by the court because of their delinquencies. Under treatment one of the earliest signs of a beginning adjustment to reality, as their guilt and aggression are worked out, is an increasing appreciation of the family troubles, without anxiety, and a wish to help and assume some responsibility.

In evaluating results in the series of cases it is invariably evident that where there was evidence of neurotic conflict, success was not obtained when the patient was placed in a new environment, no matter how ideal it seemed, nor where treatment consisted only of discussions on a conscious level. On the other hand, it has been

possible to achieve apparently satisfactory adjustments by treatment over shorter periods and for fewer hours than is customary in the usual analytic procedure. After the initial resistance has been overcome the present conflict and its relation to the infantile scene are relatively nearer the surface. Some of these cases have been followed for four or five years and are making good sexual and work adjustment. Details will be given in a later article.

Any statement of the treatment of the adolescent is incomplete without some consideration of the socio-economic background of our society, one of the most noticeable being the wide gap between ideals held up to the adolescent at home and in school and actual life as they see it. This is fostered by the teaching of many religious leaders and educators as well as parents who play upon the so-called idealism of youth, putting before them standards, particularly in regard to sex, which even they may admit cannot be achieved, without realizing the possibility of the guilt that the youth may feel in deviating from them. The normal individual may take such teachings lightly but we have all had experience with those whose early training made that solution impossible. On the other hand an understanding and acceptance of practical, workable human relations is conspicuous by its absence in the milieu as well as in the mind of many adolescents.

A second important social factor in adolescent difficulties in our society, and one that often handicaps therapy, is the attitude that expects, and often requires, social maturity to lag a considerable distance behind physical maturity. This has long been recognized and the blame has usually been put on the prolongation of the period of educational and financial dependence. This theory seems to take it for granted that there is a basic incompatibility between the process of getting an education and achieving social maturity. That there is any such psychological incompatibility may well be doubted. The cause may possibly be looked for in the paternalistic attitude of many educators which discourages efforts involving mature and independent thinking. Similarly it is difficult to see that there is anything inherent in prolonged financial dependence on parents that necessarily keeps an individual immature. It seems rather to be due to the fact that we have been accustomed through centuries to look upon those whom we support financially as dependents, from whom obedience is due.

Another complication arises out of the lack of formulations in our increasingly complicated society. If independence of thought and action are discouraged through the 'teens, then the logical corollary would be the presence of more or less concrete formulations for behavior which are widely accepted by the group. Actually, the reverse of this is true at the present time with its rapidly changing ideas and conditions and an almost paradoxical situation has arisen in which the adolescent is expected to conform to he knows not what. In his none too easy task of integrating his own past with his present, he is also in doubt as to what his " present " affords and expects of him and confusion is worse confounded.

Comment.

DR. BARRETT PASSES.

As the JOURNAL goes to press comes the sad news of the passing, at his home in Ann Arbor, of Dr. Albert M. Barrett, professor of psychiatry at the University of Michigan and director of the State Psychopathic Hospital.

Dr. Barrett's sudden death from a cardiac condition on April second removes one of the most revered leaders of American psychiatry, a great teacher, a loyal and wise friend whom this Association can ill spare. Others will carry on his work but a gap will remain in the ranks.

When in 1906 the new type of institution was created in Michigan, the University Psychopathic Hospital, first of its kind in North America, it was upon Dr. Barrett that the choice naturally fell to inaugurate the pioneer work, shape the policies of the clinic and provide instruction in psychiatry for the medical classes in the university. His record and that of his hospital during all these years furnish testimony to the wisdom of that choice. He has rendered a unique service to his state and university. The clinic at Ann Arbor has been a mecca for physicians desiring graduate work; and men trained under Dr. Barrett have been in wide request as clinical directors, teachers, investigators and administrators.

Dr. Barrett was president of the American Psychiatric Association in 1922, and in many of the Association's undertakings, in council and committees, he has served faithfully and well. He was a senior member of the editorial board of the JOURNAL, and not in name only; he never said no to a request for help, and from first to last was ready to carry his full share of editorial duties. His wise counsel and his loyal support will be sadly missed. He was a man whose judgment one could not fail to respect, and a friend with whom one loved to work.

To the family of Dr. Barrett and to his staff at Ann Arbor, on behalf of his colleagues on the editorial board of the JOURNAL the Editor extends deepest sympathy.

C. B. F.

RESPONSIBILITY IN SUICIDAL DEATH OF ESCAPED MENTAL PATIENTS.

Modern Hospital in a brief note in its February, 1936, issue (page 49) refers to a court action which is of particular importance in the administration of mental hospitals. In this case, which was diagnosed as manic-depressive psychosis, the patient committed suicide following his escape from a sanatorium. The suit of the plaintiff, as administrator of the decedent's estate, was upheld, and on appeal was sustained by the Supreme Court of Errors of Connecticut. The following comment on this case is submitted by James E. Hughes, LL. B., of the Division of Mental Hygiene of the United States Public Health Service:

A recent case in which the Supreme Court of Errors of Connecticut, held a defendant sanatorium liable in the suicidal death of an escaped patient, notwithstanding a showing that the patient had not been committed by a court and a contention that it had no right of restraint, is of interest from several viewpoints.

One of these is the far cry from the days of Pinel represented by this pronouncement of court and jury. Increasing strata of society are coming to a more realistic appreciation of the witticism that "all the world art queer" etc., and the "mentally normal" man has ceased to exist in the discussions and thoughts of students of the mind. But here is an instance of a right being created or recognized in a mental patient which is not enjoyed by persons more nearly approaching the average or normal. This growing clarification of perspective as an effect of the progress of psychiatric medicine could be considered one of the outstanding indications of our culture.

Another source of interest is the reaction to this decision by those who may visualize themselves in the position of the defendant since it is axiomatic that every right presupposes a corresponding duty. Some may conclude that in every instance where an escaped mental patient may commit suicide there will be a negligence verdict. Such reasoning would be based on the theory of the imutability of law. However, no such conclusion is warranted. It is agreed that such patients are entitled to reasonable care, but what, it may be asked, is reasonable care. It may seem paradoxical that, while the judges and jurymen in this case passed judgment after the incident had happened, they could not have defined "reasonable care" in the myriad situations which arise

in the institutional care of mental patients. But such is the nature of our jurisprudence and it must be accepted as a reality.

Some may see in this decision greatly increased difficulties in the care and treatment of mental cases. Even with their greater knowledge of these patients, they realize the impossibility of absolute assurance against suicide while patients remain in an institution, not to mention suicide occurring after a patient has escaped. The answer is that the law is not immutable in any strict sense and that circumstances alter cases. Those engaged in the care of mental patients realize the importance of special care of those with suicidal tendencies and this court decision should make them conscious of the fact that this duty has been based in one case on a legal right of such a patient. This realization should prompt a re-valuing of efforts in this direction in order that there may be made such improvement or increase in efforts as may be deemed necessary.

News and Notes.

DIPLOMATES OF THE AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY.—The American Board of Psychiatry and Neurology, the organization of which was formally announced at the last annual meeting of the Association in Washington (AMERICAN JOURNAL OF PSYCHIATRY, July, 1935, page 226), has held examinations and dealt with the records of a considerable number of applicants for certification as qualified psychiatrists and neurologists.

The following is a list of diplomates certified by the Board to January 1, 1936. They have been classified in two groups. The first, called Class I, is composed of men certified on record. Class II includes those who have been certified after examination. The symbol (P) after a name indicates certification in psychiatry; (N) indicates certification in neurology; (P.N.) indicates certification in psychiatry and neurology.

CLASS I.

Adamson, Elizabeth Ingram	New York City	(P)
Allen, Truman James	Brandon, Vt.	(P.N.)
Ash, William E.	Council Bluffs, Iowa	(P.N.)
Bancroft, Harold A.	Hartford, Conn.	(P.N.)
Barrett, Thomas M.	Marion, Ind.	(P.N.)
Bentley, Inez A.	New York, N. Y.	(P.N.)
Block, Siegfried	New York, N. Y.	(P.N.)
Bonner, Clarence Alden	Hathorne, Mass.	(P)
Brill, Abraham A.	New York, N. Y.	(P)
Burlingame, C. Charles	New York, N. Y.	(P)
Campbell, C. Macfie	Boston, Mass.	(P)
Casamajor, Louis	New York, N. Y.	(P.N.)
Chambers, Ralph Miller	Taunton, Mass.	(P)
Chaney, L. Beverley	New York, N. Y.	(P.N.)
Cheney, Clarence O.	New York, N. Y.	(P.N.)
Craig, C. Burns	New York, N. Y.	(P.N.)
Darling, Ira A.	Warren, Pa.	(P.N.)
Dershimer, Frederick W.	New York City	(P)
Dexter, Roderick B.	Foxborough, Mass.	(P)
Doyle, John B.	Los Angeles, Cal.	(P.N.)
Ebaugh, Franklin G.	Denver, Colo.	(P.N.)

Emery, E. Van Norman.....New Haven, Conn. .....(P)
Farmer, W. Scott.....Nashville, Tenn. .....(P)
Farrar, Clarence B.....Toronto, Ont. .....(P.N.)
Farrar, Lonnie Oliver.....Worcester, Mass. .....(P)
Freeman, Walter .....Washington, D. C.....(P.N.)
Gardner, William Emmett.....Louisville, Ky. .....(P.N.)
Gordon, Alfred .....Philadelphia, Pa. .....(P.N.)
Gosselin, George A.....Hartford, Conn. .....(P.N.)
Gregory, Menas S.....New York, N. Y.....(P)
Hall, George W.....Chicago, Ill. .....(P.N.)
Hamilton, Samuel W.....White Plains, N. Y.....(P)
Harrington, Arthur H.....Providence, R. I.....(P)
Harris, Titus H.....Galveston, Tex. .....(P.N.)
Haskell, Robert H.....Northville, Mich. .....(P)
Hickling, Daniel Percy.....Washington, D. C.....(P.N.)
Howard, Merle Q.....Wauwatosa, Wis. .....(P)
Howes, Seth F. H.....Howard, R. I.....(P)
Hyslop, George Hall.....New York, N. Y.....(P.N.)
Jackson, J. Allen.....Danville, Pa. .....(P.N.)
Jelliffe, Smith Ely.....New York, N. Y.....(P.N.)
Keyes, Baldwin L.....Philadelphia, Pa. .....(P.N.)
Leak, Roy L.....Middletown, Conn. .....(P)
Leslie, Frank Elliott.....Northampton, Mass. .....(P)
Long, Thomas Lee.....San Francisco, Cal. .....(P.N.)
May, James Vance.....Boston, Mass. .....(P)
Mayer, Edward E.....Pittsburgh, Pa. .....(P.N.)
McConnell, Whitman Carlisle.....St. Petersburg, Fla.....(P.N.)
Mella, Hugo .....St. Cloud, Minn.....(P.N.)
Meyer, Adolf .....Baltimore, Md. .....(P.N.)
Neal, Josephine B.....New York, N. Y.....(N)
Neymann, Clarence A.....Chicago, Ill. .....(P.N.)
Noyes, Arthur P.....Howard, R. I.....(P)
Olsen, Alfred Berthier.....Battle Creek, Mich.....(P)
Otis, Walter J.....New Orleans, La.....(P.N.)
Overholser, Winfred .....Boston, Mass. .....(P)
Paine, Harlan Lloyd.....North Grafton, Mass.....(P)
Parsons, Frederick W.....Albany, N. Y.....(P)
Rapaport, Walter .....Imola, Cal. .....(P)
Ratliff, Thomas Asbury.....Cincinnati, Ohio .....(P)
Raynor, Mortimer W.....White Plains, N. Y.....(P.N.)
Reese, Hans H.....Madison, Wis. .....(P.N.)
Ricksher, Charles .....Norwich, Conn. .....(P.N.)
Robbins, James Merle.....Kenilworth, Ill. .....(P)
Ruggles, Arthur H.....Providence, R. I.....(P)
Rutherford, Thos. A.....Clarks Summit, Pa.....(P)
Sands, Irving J.....Brooklyn, N. Y.....(P.N.)

Schwenkenberg, Arthur J.....Dallas, Tex. .....(P.N.)
Siewers, Albert B.....Syracuse, N. Y.....(P.N.)
Singer, H. Douglas,.....Chicago, Ill. .....(P.N.)
Sleyster, Rock .....Chicago, Ill. .....(P)
Solomon, Harry Caesar.....Boston, Mass. .....(P.N.)
Steckel, Harry A.....Syracuse, N. Y.....(P)
Stevenson, George S.....New York, N. Y.....(P)
Thompson, Charles Edward.....East Gardner, Mass.....(P)
Timme, Walter .....New York, N. Y.....(P.N.)
Tryon, Geneva .....Dorchester Center, Mass.....(P)
Turner, Carrol C.....Memphis, Tenn. .....(P.N.)
Uhler, Claude .....Farnhurst, Del. .....(P.N.)
Viets, Henry R. .....Boston, Mass. .....(P.N.)
Waterman, Chester .....Norwich, Conn. .....(P)
Wearne, Raymond G.....Central Islip, N. Y.....(P)
White, William Alanson.....Washington, D. C.....(P.N.)
Wiedman, Otto G.... .....Hartford, Conn. .....(P.N.)
Woltman, Henry W.....Rochester, Minn. .....(P.N.)
Wood, W. Franklin.....Waverley, Mass. .....(P)
Zabriskie, Edwin G.....New York, N. Y.....(P.N.)
Ziegler, Lloyd H.....Albany, N. Y.....(P.N.)
Zilboorg, Gregory .....New York, N. Y.....(P)

CLASS II.

Angus, Leslie Robert.....Hartford, Conn. .....(P)
Arbuse, David Irving.....New York, N. Y.....(N)
Barrett, Joseph Eagle.....Boston, Mass. .....(P)
Bennett, A. E.....Omaha, Nebr. .....(P.N.)
Bookhammer, Robert S.....Philadelphia, Pa. .....(P)
Bucy, Paul C.....Chicago, Ill. .....(N)
Carmichael, Donald M.....Brentwood, N. Y.....(P)
Carmichael, Hugh Thompson.....Hartford, Conn. .....(P.N.)
Conn, Jacob H.....Baltimore, Md. .....(P)
Coon, Gaylord Palmer.....Foxborough, Mass. .....(P.N.)
Duncan, Dean Hume.....Shreveport, La. .....(N)
Feigin, Samuel .....New York, N. Y.....(P)
Finesilver, Benjamin .....New York, N. Y.....(N)
Fitzpatrick, Charles Patrick.....Providence, R. I.....(P.N.)
Guthrie, Riley H.....Boston, Mass. .....(P)
Hare, Clarence C.....New York, N. Y.....(P.N.)
Helfand, Max .....New York, N. Y.....(N)
Hinsie, Leland Earl.....New York, N. Y.....(P)
Houser, Gerald Frederick.....Boston, Mass. .....(P)
Kasanin, Jacob .....Howard, R. I.....(P.N.)
Kaufman, M. Ralph.....Cambridge, Mass. .....(P.N.)
Keill, Kenneth .....Brentwood, N. Y. .....(P)

Lang, H. Beckett	Brentwood, N. Y.	(P)
LeDrew, Frederick	Mattapan, Mass.	(P)
Mackay, Roland P.	Chicago, Ill.	(P.N.)
Merritt, H. Houston	Boston, Mass.	(P.N.)
Murphey, Bradford J.	Colorado Springs, Colo.	(P)
Patry, Frederick Lorimer	Albany, N. Y.	(P)
Prout, Curtis T.	Hartford, Conn.	(P.N.)
Putnam, Tracy Jackson	Boston, Mass.	(P.N.)
Reback, Samuel	New York, N. Y.	(P.N.)
Richter, Richard B.	Chicago, Ill.	(P.N.)
Rothschild, David	Foxborough, Mass.	(P.N.)
Schube, Purcell George	Boston, Mass.	(P)
Shapiro, Isaac	Schenectady, N. Y.	(N)
Southerland, Robert Williams	Brentwood, N. Y.	(P.N.)
Thomas, Jackson M.	Waverley, Mass.	(P.N.)
Tillotson, Kenneth J.	Waverley, Mass.	(P)
Vonderahe, A. R.	Cincinnati, Ohio	(P.N.)
Wagner Carl P.	Hartford, Conn.	(P.N.)
Woolley, Lawrence F.	Towson, Md.	(P)
Yakovlev, Paul Ivan	Palmer, Mass.	(N)

REORGANIZATION OF THE INTERNATIONAL LEAGUE AGAINST EPILEPSY.—At the time of the International Neurological Congress in London, a meeting of those particularly interested in epilepsy was held, July 31, 1935, at the Lingfield colony. Thirty-two doctors representing 14 countries were present. After discussion, it was unanimously decided that the International League against Epilepsy should be revived. The immediate efforts should be directed towards the improvement of the social condition and the institutional care of persons with epilepsy. To this end, it was agreed that there should be a publication, issued annually or oftener, acquainting readers with facilities and with remedial efforts carried on in various countries. Plans were also laid for a meeting of the League at the time of the next Neurological Congress in Copenhagen.

At an adjourned meeting held Aug. 2 (Prof. A. Ley of Brussels in the chair), the following officers were elected: President, William G. Lennox, Boston, U. S. A.; Secretaries, H. I. Schou, Dianalund, Denmark, L. J. J. Muskens, Amsterdam, Holland; Treasurer; Tylor Fox, Lingfield, Surrey, England.

All persons interested in improving the condition of epileptics are invited to join the League. Membership, which includes subscription to the periodical, is the equivalent of 5 shillings a year, or 15 shillings for the four-year period.

BRAINS DESIRED FOR RESEARCH.—The Department of Neurology and Psychiatry of the Albany Medical College is engaged in a research problem which requires brains of individuals under 45 years of age, who have had either dementia precox or manic-depressive psychosis.

It is necessary that certain conditions be fulfilled in the preparation of this material. The necropsy should have been performed not later than 9 hours after death, and the brain weight recorded in grams at the time of necropsy. Brains should be suspended in a two-gallon jar of fresh 10 per cent formalin solution where they should remain at least 10 days. Brains should not be sliced. Only specimens of well studied brains are desirable, and an abstract of the history must be accessible.

All expenses incurred in supplying specimens and abstracts will be defrayed. We shall be grateful to those who will be able to supply the desired material. For further information or instructions please write to Lloyd H. Ziegler, M. D., Professor of Neurology and Psychiatry, Albany Hospital, Albany, N. Y.

MARYLAND INVESTIGATION.—The special commission appointed by Governor Harry Nice to investigate the state hospitals of Maryland is expected to send in its report in the near future.

The commission, consisting of three psychiatrists and three laymen, follows in the wake of another investigation by a legislative committee of three lawyers which was created last winter to "investigate the state institutions." This committee acted without the benefit of medical or technical advice and proceeded to concentrate their attention on the state hospitals, which under a depleted budget had been operating with a per capita maintenance cost of 57 cents a day.

PENDING FEDERAL LEGISLATION.—A new juvenile court bill for the District of Columbia is now pending in Congress and is provoking considerable discussion. The bill, H.R. 10363, 74th Congress, 2d Session is a very interesting one, and was prepared by well qualified persons. Informed observers state that the adverse criticism the bill has thus far received is illuminating as illustrating the traditional prejudices that appear on the introduction of any progressive legislation in the medico-legal field.

Also pending before Congress is H.R. 3451 which would improve the method of commitment to St. Elizabeth's Hospital. Although considerably altered since introduction, it is still a constructive piece of legislation.

Both of these bills are important and significant as movements in the social realm for practical psychiatry.

CONNECTICUT SURVEY.—Considerable work has already been done by the special commission appointed by Governor Cross of Connecticut to make a survey of existing facilities for the care of the mentally ill and to recommend necessary changes in physical plant, statutes and methods to the incoming legislature next January.

Three members of the American Psychiatric Association are on the commission, Dr. Roy L. Leak, superintendent of the Middletown State Hospital, Dr. C. Charles Burlingame of Hartford, and Dr. Eugen Kahn of New Haven.

EXAMINATION FOR THE POSITION OF DIRECTOR OF THE NEW YORK STATE PSYCHIATRIC INSTITUTE AND HOSPITAL.—The Department of Civil Service of the State of New York announces that an open competitive examination for this position will be held during May 1936.

The Psychiatric Institute and Hospital is a 200 bed institution, located in the Columbia-Presbyterian Medical Center on West 168th Street, New York City. It is the research-teaching center of the Department of Mental Hygiene and is supported by state appropriations. The laboratories for research are extensive and under the direction of qualified scientists, but it is the duty of the director to co-ordinate the research program. In addition the direc-

tor is responsible for the investigations being made in the field of clinical psychiatry. Courses of instruction in psychiatry for junior medical officers of the institutions in the Department of Mental Hygiene are held at the Institute annually, courses of training in neuropathology are given from time to time and one of the important duties is to give and supervise the instruction in psychiatry to medical students and to pupils in the schools of nursing maintained in the medical center. An active out-patient department is maintained.

The salary of the director is $6000 per year with $3000 additional in lieu of maintenance, making a total of $9000. From this amount a deduction is made for pension purposes. The present incumbent is professor of psychiatry in the College of Physicians and Surgeons of Columbia University; and this position carries a salary of $2500 a year. The director to be appointed probably will be accepted by the University if qualified to direct the psychiatric instruction to medical students.

This examination is open both to residents and to non-residents of New York State. Application forms for the examination may not be issued by mail after May 14, 1936, and to be accepted should be delivered personally or bearing postmark not later than May 15, 1936.

Candidates must be at least 30 years of age and must be United States citizens, by birth or naturalization; in the latter case naturalization papers must be submitted in proof of claim. If naturalized directly, the applicant's final certificate of naturalization must be submitted. If citizenship is claimed by the naturalization of a parent during minority of child, final naturalization certificate of such parent must be submitted. All such papers should be sent by registered mail. In case the original naturalization papers have been lost, a copy of the naturalization certificate should be procured from the Naturalization Bureau, Washington, D. C. An application from a foreign-born person claiming citizenship but failing to furnish the required proof will be rejected. Declaration of intention to become a citizen will not be accepted. Full citizenship and final papers are necessary.

Minimum Qualifications.—Candidates must be graduates of a medical school registered by the New York State Department of Education and must be licensed to practice medicine in New York

State or be eligible for such license. They must have had not less than ten years of satisfactory experience in clinical psychiatry, during which time each candidate must have demonstrated outstanding leadership in the field of psychiatry, psycho-biology and psychopathology, and allied subjects. Experience in the teaching of psychiatry is desirable.

At the time of filing applications, candidates must submit publications or other evidence of demonstrated ability and leadership in psychiatry and other related fields mentioned.

Veterans claiming preference in appointment because of disablement in war service, should write, at the time of making application, for special form on which to file such claim.

Candidates are required to attain at least 75 per cent. They will be rated by a group of distinguished physicians to be selected by the New York State Civil Service Commission. As an aid in rating training, experience and general qualifications, personal interviews may be required at a later date. All statements on applications are subject to investigation.

For application forms address Examinations Division, State Department of Civil Service, Albany, New York.

POSTGRADUATE COURSE, MENNINGER CLINIC.—Dr. Israel Wechsler of New York City and Dr. J. W. Kernohan of the Mayo Clinic will cooperate with members of the staff of the Menninger Clinic in a postgraduate course held at the Menninger Clinic, Topeka, Kansas, April 20-25, 1936. The subject of the course will be "Neuropsychiatry in General Practice," and will conform essentially to the outlines of the course given last year. Lectures, case studies and seminars included in the five and a half day course will be expressly directed to the application of modern neuropsychiatric principles to cases which the general practitioner frequently sees in this field. Enrollment in the course is limited to 30.

MEETING OF AMERICAN ASSOCIATION ON MENTAL DEFICIENCY.—This association composed of some 500 educators, psychologists, sociologists and psychiatrists is holding its sixtieth annual meeting at the Hotel Jefferson, St. Louis, Mo., on May 1, 2, 3 and 4, 1936.

The Friday sessions will be devoted to general and sociological aspects of mental deficiency; the Saturday sessions to psychological and educational topics with special stress on educational disabilities. The Monday sessions will be given over to research activities, medical aspects and administrative problems in mental deficiency.

Some of the speakers are: Popenoe on "Sterilization," Goddard on "Social Security," Hincks on "A National Program," Kirkbride on "Public Welfare," Hackbusch on "Social Service," Vanuxem on "Education," Berry on "Teaching Techniques," Humphreys on "Research Problems," and many others. Everyone interested in the mentally defective or retarded child is cordially invited to attend these sessions. The complete program may be obtained from the Secretary, Dr. Groves B. Smith, Godfrey, Illinois.

THE ELEVENTH INTERNATIONAL CONGRESS ON PSYCHOLOGY.—The Eleventh International Congress will take place in Madrid, September 6-12, 1936. The official languages of the Congress are English, French, German, Italian and Spanish.

The program will comprise:

(a) Symposia, each of which will be conducted by two or more psychologists.

(b) Round table conferences in which eight to ten members especially interested in individual topics will, under the guidance of a chairman, discuss their particular problems.

(c) Open conferences in which members who have specialized in individual problems of contemporary psychology will offer their findings.

(d) Individual communications of a variety of topics.

Membership in the Congress includes active members, fee 75 pesetas (approximately $10.50), associate members, fee 40 pesetas (approximately $5.60), and supporting members, fee 100 pesetas (approximately $14.00). Active membership is open to psychologists or specialists in related sciences. They may present papers and take part in discussion, and will receive all of the official publication of the Congress. Associate membership is open to others interested in the work of the Congress. They may attend the meetings, but may not take part in the discussion, and will not receive the scientific

publications. Supporting membership includes scientific organizations, libraries, etc., which are disposed to share in the expense of the Congress and will receive the published volume of transactions.

Professor E. Mira is president of the Congress; J. Germain, general secretary, to whom correspondence may be addressed at the headquarters of the Congress,—l'Instituto Nacional de Psicotecnia á Madrid (Alberto Aguilera, 25).

THOMAS WILLIAM SALMON MEMORIAL LECTURES.—The Salmon Committee on Psychiatry and Mental Hygiene announces the fourth series of Thomas William Salmon Memorial Lectures to be given by Samuel T. Orton, M. D., Friday evenings, April 10, 17, and 24, 1936, at 8.30 at the New York Academy of Medicine, 2 East 103d Street, New York. Dr. Orton's subject is "Developmental Disorders of the Language Faculty and Their Psychiatric Import." The several lecture topics are:

Lecture I. Language Losses in the Adult as the Key to the Developmental Disorders in Children (April 10).—A discussion of the physiological background of the language faculty as revealed in the aphasias. The problem of unilateral cerebral dominance. Reports of studies indicating that all degrees of intermixture occur between right and left sidedness. Such intergrading between the hemispheres is suggested as the background for many language disorders in children.

Lecture II. The Syndromes of Disorder in the Development of Language (April 17).—Six syndromes are discussed from the point of view of their symptomatology: reading disability (strephosymbolia), developmental word deafness, congenital apraxia, motor speech delay, writing disability, and stuttering.

Lecture III. Treatment and Psychiatric Interpretation (April 24).—A brief review of the general principles of treatment of the various syndromes, together with a discussion of the relation of these conditions to emotional and mental development.

DR. DIETHELM GOES TO THE NEW YORK HOSPITAL.—Dr. Oskar A. Diethelm, associate professor of psychiatry at the Johns Hop-

kins Medical School in Baltimore, has been appointed psychiatrist-in-chief of the New York Hospital and professor of psychiatry in Cornell University Medical College, assuming his new duties in March of this year. Dr. Diethelm succeeds Dr. George S. Amsden, who retired from both these positions in 1935.

A native of Switzerland, Dr. Diethelm graduated in medicine at the University of Berne in 1923. In 1925 he joined Dr. Adolf Meyer's staff at the Henry Phipps' Psychiatric Clinic of the Johns Hopkins Hospital, becoming resident psychiatrist in 1927, and associate professor of psychiatry in 1932.

Dr. Diethelm's experience as a clinician, teacher and investigator, assures that the work which has been carried on by Dr. Amsden with so much distinction will be maintained at the high level which has been established at the New York Hospital and Cornell Medical College.

Book Reviews.

KREISLAUF UND HIRNTUBERKULOSE. (THE CIRCULATION AND TUBERCULOSIS OF THE BRAIN—An investigation into the pathological changes in the arrangement of blood vessels, due to inflammatory cerebral states.) By *Dr. Phil. et med. Richard Arwed Pfeifer.* (Dresden & Leipzig: Theodor Steinkopff, 1935.)

The author has extended the technique which he has previously used in the study of the normal arrangement of the small vessels in brain tissue, 1928, to observations on these vessels under pathological conditions.

Arterial injections of emulsions of tubercle bacilli into monkeys have resulted in widespread foci of cerebral tuberculosis of three types:— (a) The inflammatory-exudative, leading to caseation, (b) the inflammatory-productive, with tubercle formation and (c) an inflammatory-cirrhotic type. He makes the interesting suggestion that the tuberculous "giant-cell" may not be an individual cellular element but a thrombosed, degenerate bloodvessel, the peripherally-arranged nuclei being those of the endothelial cells which originally lined the lumen of the vessel.

The major part of the work is devoted to the changes which take place in the arrangement of the blood-vessels in the neighbourhood of, and within tuberculous lesions. He emphasizes the importance of the arterial embolic spread of the tuberculosis to the brain-tissue, with a resultant focus of tuberculous arteritis, from which the lesion spreads. He confirms the observation of the avascularity of the centre of a caseating tuberculous lesion. There is considerable distention of the small vessels surrounding the lesion in its earlier stages, which may give place later to comparative avascularity, especially in the cirrhotic type of the disease, due to the proliferation of connective-tissue and consequent strangulation of the blood-vessels of the area.

The monograph is excellently and profusely illustrated.

ERIC A. LINELL,
University of Toronto.

MY ADVENTURE INTO SPIRITUALISM. By *E. Lee Howard, D.D.* (New York: Macmillan Co., 1935.)

This is a book in which a minister of the Congregational Church in the United States describes very vividly certain experiences by which he has become convinced that the spirits of those who die do not necessarily lose all possibility of contact with those still living. Just as in the records of telepathic experiences there seems to be a core which resists all efforts to explain the phenomena on a materialistic ground, so some of Dr. Howard's experiences

do not seem to be readily explainable if his premise is denied. He admits spiritualism has gained an unsavory reputation by reason of the veniality and dishonesty of some of its practitioners, and there is no need to stress the point that "he believes who wishes to believe."

As a record of the full, interesting life of a minister of God in the United States of today, a man of sincerity, courage and imagination, the book leaves nothing to be desired. Dr. Howard has met and known many interesting people and his unconscious revelation of his own character proves him to be a single-hearted and completely honest Christian. He has succeeded in reconciling sincere faith with his spiritualism and perhaps as striking a passage as any is to be found in one of his closing paragraphs where he says, "When that day comes everything that is true and noble and wholesome in Spiritualism will receive an appraisal and acceptance that shall recover to the Church of Christ the ancient power of Pentecost. And just as staunchly as I have been loyal to the Christian faith shall I continue to maintain the truth in Spiritualism. The name may be a reproach for a long time yet, but even on the most scornful lips it can never be such an epithet of contempt as was once the word 'Christian.' 'Spiritism' and 'psychism' have never obtained naturalization in my personal vocabulary. But sensible persons never quarrel about verbal preferences—they simply ask the right to use the words that have become most greatly fraught with meaning to themselves."

J. L. Biggar, M. B.

A Survey of Industrial Mental Hygiene. (Pittsburgh: School of Medicine, University of Pittsburgh, 1934.)

As the title implies, this publication is a survey. It is largely confined to a statistical analysis and classification of the incidence of certain conditions in industry, drawn from different sources. There is no broad interpretation of the findings; nor are there any specific recommendations for the alleviation of the conditions found. The use of the term "Mental Hygiene" is considerably extended to cover the wide diversity of material dealt with. There are statistics presented with regard to the importance of mental hygiene in industry and in general; there is a classification of various hospital cases along with an analysis of their personal data sheets; there are discussions relating to employee rating, industrial accidents, workmen's compensation, industrial poisons, and several other topics concerned in general with the work of the physician in industry.

The study displays the usual disadvantages of a strictly statistical survey in that, although it may prove a handy statistical reference for certain information, it leaves one wondering what it is all about.

S. N. F. Chant.

Psychology and Health. By *H. Banister, M. Sc., Ph. D.* New York: The Macmillan Company. (Cambridge: The University Press, 1935.)

The author, who is lecturer in experimental psychology at Cambridge University, has apparently written this book an an introduction to psychiatry

for medical students, medical practitioners and other interested persons. He presents a dynamic approach, drawing upon various sources for his views, but with an anti-Freudian prejudice, including liberal stock criticisms of the Freudian theories of infantile sexuality, the ubiquity of Eros, sexual symbolism in dreams, the Œdipus complex, etc.

Chapter I is an excellent summary of the necessity for psychiatry in medical practice. Chapter II contains scholarly definitions of the person, reflexes, emotions, sentiments, complexes and character. The following chapters on mental defect, the problem child, infantile sexuality, problems of adult life, effects of ill health and invalidism are aptly though briefly discussed. The chapters on suggestion, hypnosis, the unconscious and dissociation, conversion hysteria, anxiety states (these he regards as neurasthenia and gives as symptoms depression, insomnia, irritability, inappetence), compulsions and obsessions are clear discussions of the various subjects but include no discussion of the major psychoses and their early differentiation from the psychoneuroses.

The presentations of the theories of Janet, Freud, Jung and Adler are brief and intelligible. Three well written chapters on treatment follow which are much too brief to be a guide to a practitioner. He apparently does not feel that a psychotherapist necessarily need be medically trained if he practice in conjunction with a qualified medical practitioner. He states that the best training for a would be psychotherapist, in lieu of undergoing a course of personal treatment, can be obtained through a well conducted children's clinic where the necessity for secrecy is not so great. The final chapter has an interesting presentation of the integration of the personality. There is an adequate index and a good bibliography.

While attractively written and useful as a presentation of a psychiatric point of view to the uninformed, it is doubtful if this book supplies any need not filled by the standard texts.

HENRY W. BROSIN, M. D.,
Colorado Psychopathic Hospital.

FOR STUTTERERS. By *Smiley Blanton, M. D., and Margaret Gray Blanton.* (New York, D. Appleton-Century Company, Inc., 1936.)

This small book of 191 pages is addressed primarily to the stutterer himself in order that his appreciation of his problem may help in its solution. Beyond this, the book is obviously of value to the family and friends of the stutterer and those attempting to help him on a professional basis. The concept on which the presentation is based is that stuttering is just one facet of the expressed personality, and that as such it must portray and be determined by that which lies beneath. It is obvious that the authors are bound by this thesis to deal with the underlying determinants in a non-specific law. It is, after all, the same personality that underlies the stutterer's manner of walking, his relation to his acquaintances, and all other personal characteristics. It may be somewhat difficult for the lay reader to digest this non-specific approach when traditional treatment has been orally centered. The authors do not

clarify the differentiating features that produce a disorder of speech rather than some other disorder. They stress the point that the non-specific elements are so mighty and so fundamental that they deserve primary attention.

The book was given by the reviewer to an intelligent non-stuttering adolescent for comment. Discussion showed that, in general, the main thesis was well grasped. The details of psychopathology were fairly understood, but the neurological presentation resulted in no clear picture and tended to result in some confusion.

Even though some of the neurological and psychopathological discussion is not readily absorbed, it does leave the correct impression that the subject is a very complex one. It might here be emphasized that the didactic and clinical training required for winning the degree Doctor of Medicine in no sense equips the physician to deal with the stutterer, and that even the ordinary course of preparation for psychiatry does little better.

GEORGE S. STEVENSON, M. D.

THIRD ANNUAL REPORT OF MENTAL INSTITUTIONS. Dominion of Canada. (Ottawa: Dominion Bureau of Statistics, 1934.)

This report represents a summary of the significant data concerning mental institutions in Canada for the year 1934, along with some comparative data for each of the three years (1931 to 1934) for which a similar report has been made.

"The report is presented in two sections. Part I deals with administrative aspects, general statistics of movement of patient population and statement of finances in all mental institutions in Canada. Part II includes special and detailed information in the form of tables covering first admissions, readmissions, discharges, transfers and deaths in 31 public hospitals, together with detailed classifications of the various psychoses of patients and a large body of other important data made available by the card system which is now in use in 31 public mental hospitals in Canada."

There were 58 institutions in Canada at the close of the year 1934, 36 of which were public hospitals under the control of provincial governments, the others being county, municipal, Dominion or privately controlled institutions. Of the 58 institutions in Canada, Prince Edward Island and New Brunswick each had one, Saskatchewan had two, Alberta and Manitoba each had four, British Columbia had five, Quebec had nine, and Nova Scotia and Ontario each had sixteen. The large number of institutions listed for Nova Scotia is due to the fact that this province still maintains fourteen county institutions along with its one provincial hospital and one provincial training school, thus differing from the other provinces, where there are no county institutions. Ontario, which has the same total number of institutions as Nova Scotia, maintains ten provincial hospitals. The total patient population at the close of the year 1934 was 39,106, which was, incidentally, about 400 more than the normal capacity. The daily average resident patients for the year was 36,571, of which 79.72 per cent were classified as insane, 18.91 per cent feeble-minded, and 1.37 per cent epileptic. The total personnel for institutions in Canada

was 6915 employees. For 39 institutions solely given to the care of mental patients, there was one physician to every 156.1 patients and one graduate nurse to each 40.5 patients.

There is clearly tabulated information concerning the admissions, discharges and deaths for patients for the year 1934, and also comparative mortality rates for the years 1930 to 1934. The proportion of admissions per 100,000 of population was 73.1 and the readmissions 17.6, making a total of 90.7 for direct admissions. There were 5511 patients discharged from institutions in 1934 which was 11.5 per cent of the total patients treated. The deaths numbered 2253 which was 4.7 per cent of the total patients treated, which is at the rate of 62.1 per 1000 patients in mental institutions. For 1931 this was 64.2, for 1932, 68.0, and for 1933, 62.1.

Tables concerning finances indicate that: receipts for maintenance of institutions are made up for the most part of provincial grants, amounting to about 61.8 per cent of the total receipts, federal payments which are less then 5.8 per cent, municipal grants which are about 6.0 per cent, and receipts from paying patients which are 13.7 per cent of the total receipts. The average yearly expenditure per patient is $354.96 or 97c per day for total expenditures.

Of first admissions, 79.7 per cent are classed as insane, the remainder including mental defectives, epileptics, alcoholics, drug addicts, etc. The psychoses of first admissions show that with 23.1 per cent in the dementia præcox group and 13.1 per cent in the manic depressive group, these two are the largest groups. For readmissions, 31.8 per cent belonged to the manic depressive group and 25.9 per cent were cases of dementia præcox. 27.3 per cent of all patients were discharged as recovered, 51.2 per cent as improved. 17.2 per cent as unimproved, and 4.3 per cent as without psychosis. The rate of recovery is 23.9 per cent for males and 31.5 per cent for females. The largest number of deaths occurred in the dementia præcox group with 19.5 per cent, manic depressive with 8.7 per cent, senile with 19.2 per cent, and general paresis with 7.1 per cent.

It is interesting to note the comparative figures both for the year 1934 itself and for the years 1931 to 1934. There was an increase of 1668 patients for the year 1934, the provinces of Quebec and New Brunswick showing the largest increase. The number of patients per 100,000 of the mean population increased from 324.9 at the end of 1933 to 335.6 at the end of 1934. For the period 1931 to 1934, whereas the normal capacity was increased by 3,034, the daily average residence was increased by 4885. The figures showing the number of patients per 100,000 of general population indicate that this is not due to an increase in population, with 305.4 patients per 100,000 of general population in 1931, and 335.6 patients per 100,000 of general population in 1934." This serious problem is being met by increasing the bed accommodation in mental institutions, by a larger use of the parole system, by boarding-out of selected patients, by the reestablishment of improved or recovered patients, by improvement in stages by the various mental health clinics."

MIRIAM M. WINSTON, M. A.,
Toronto.

WORKBOOK IN PSYCHOLOGY. By *Carl Havelock Wedell.* (New York: John Wiley and Sons. London: Chapman & Hall, Ltd., 1936.)

This is a student's workbook to accompany *Psychology, —A Factual Textbook,* edited by Boring, Langfeld and Weld. It divides the material into thirty-three lessons, each of which includes suggestions for study, notes and explanations, exercises and questions to be answered by the student. It reflects the "factual" emphasis of the text, and draws attention to the more difficult concepts employed. Like other tools, its value will depend on the manner of its use. Of its kind, it is a very carefully constructed manual.

W. LINE.

THE SOCIAL WORKER IN THE PREVENTION AND TREATMENT OF DELINQUENCY. By *Margaretta Williamson.* (New York: Columbia University Press, 1935.)

This volume is the fourth in a Job Analysis Series prepared under the auspices of the American Association of Social Workers. It presents a discussion of the everyday functions of probation, parole, and protective agency officers, and of their supervisors and executives. The discussion is quite detailed and covers a wide range of topics, such as the part of the chief executive officer in the determination of policy, the personnel requirements of field workers, suggestions as to forms of case records and reports, and the use of the bulletin board. The author does not attempt to lay down standards nor to estimate the value of existing practices, but examples are quoted of the practices in many agencies. The information has been gleaned from many sources and has been reviewed by a committee of specialists in these fields. The material is presented in a systematic manner and will undoubtedly be found interesting and suggestive by workers in these agencies.

The title of the book is somewhat misleading in view of the limitation of material to the fields of the probation, parole, and the protective agencies. There is no discussion of the functions of the social worker in institutions for the delinquent—it is explained in the foreword that this is omitted for reasons of space and cost. Under this title one might expect a discussion of the part of the social worker in family and psychiatric social work, in view of the generally recognized necessity, in the prevention of delinquency, of reaching the individual in the pre-delinquent stage. This phase of the field has been covered, it is said, in the preceding volumes of this series.

The statement that "recent trends in case work attach increasing significance to the boy's or girl's own story, and to psychological rather than sociological or environmental factors" is one of many statements that will be of particular interest to the psychiatric reader. A change in the viewpoint of protective agencies from that implied in the aim of "strengthening the moral fibre" of their clients to that of "study of community situations unfavourable to wholesome development of young persons" is an indication of some progress towards practical objectives. The psychiatrist will also be interested in the all too brief description of the field worker's attempts to work directly upon the personality of the offender. The principal objection

that this reviewer would make to this volume, within the field of prevention and treatment that it sets out to describe, is the inadequacy with which the personal relationships of worker and offender are discussed. Much space is devoted to the "mechanics" of the officer's functions, such as size of case load, frequency and place of offender's reporting to the worker, hours of work, and to environmental aspects of investigation and treatment, such as persons to be interviewed regarding the offender's previous behavior and changes of school placement. The personal relations existing between the worker and the delinquent individual are surely the nub of the situation so far as the worker's effectiveness in the prevention and treatment of delinquncy is concerned. It seems woefully inadequate to say in this connection, in the chapter on the probation officer, only that "here and there a particular officer has tried to direct his relationships with the probationer so as to encourage growth of character and the development of judgment, initiative, self-respect and ability to make decisions," with one short paragraph of explanation.

C. G. Stogdill, M. D.,
Toronto.

Human Personality and the Environment. By *Charles Macfie Campbell, M. D.* (New York: The Macmillan Company, 1934.)

This book presents the substance of six lectures delivered before a lay audience at the Lowell Institute, Boston, February 1933.

Dr. Campbell says, "Our present use of the term personality lays less emphasis on appearance than on reality; the personality is the expression of the total forces of the individual, it is the product of their integrated activity, it is the man in action as seen by the outsider and known to himself." This idea of integration and of total forces of the individual is not lost sight of throughout the book. Even the "basic supplies" in chapter I, food, water, air, sunshine are not isolated things in relation to the individual.

Chapter II deals with bodily equipment. There is a nice mingling of precise data regarding the central nervous system, the autonomic nervous system, the endocrine glands and of assumptions and theoretical considerations about human behavior.

"From Cell to Person" gives some glimpses of genetics, but more particularly shows the importance of habits formed in infancy and childhood, of the likes and dislikes of this period and their effects upon adult personality.

Having considered in the first three chapters "some general factors involved in the human personality," the author proceeds in the last three to a "summary review of some particular qualities and to scrutinize the divergences in human personality which make each individual unique and give to social intercourse much of its colour and charm."

The discussion in chapter IV of how individuals differ, reviews the efforts of various men to classify personality types, and illustrates from the lives of famous personalities. Dr. Campbell says that "it is well to emphasize the fact that each detail of the behaviour of the individual is but one aspect of the adaptation to its environment of a unitary organism which in its earliest

and simplest stage was a fertilized ovum, a single cell. Structures and functions have developed, adaptations of great complexity have been elaborated which throw the chief stress of function now here, now there, but each phenomenon of the personality on which we concentrate our attention is but one aspect of the maintenance by the organism of its internal dynamic equilibrium and of its adaptation to the total situation."

Again in chapter V are many notable individual examples of how "the tasks of life" were done by Captain Scott, Bunyan, Shelley, Helen Keller, Lord Byron, Karolyi, Schopenhauer and others. The importance of physical handicaps, the urge of sex, the influence of repression are noted in individual adaptations.

The final chapter discusses the personality and the total situation with again illustrative material.

We have found the book stimulating, challenging and exceedingly well written, and as the lectures were originally for laymen we have pleasure in giving, with his permission, the opinion of a distinguished Toronto layman about this book—"A book such as Dr. Campbell's 'Human Personality and the Environment' is a valuable acquisition and deserves a wide public. It appeals to the general reader on the practical side, that is on the side he can most readily appreciate. Even if the arguments are directed to things outside the reader's own personal experience, they refer to experiences which his common sense at once accepts as reasonable, and the whole approach to the subject is one which will catch up his interest and sympathy.

"He knows that he is more irritable when he is weary, and cold and hungry. He can therefore understand that the rarefication of atmosphere at considerable heights above the ground can change a man's outward temperament, or that intense cold and hunger, backed by the protracted insufficient nourishment, can bring changes in a man's personality. This is a cleverly planned introduction for the general reader and followed as it is by a consideration of the mental states produced by a temporary or permanent change in the glandular balance of the body, the subject may for many a general reader become really intelligible for the first time. Moreover, the shrewd observations in life itself which Dr. Campbell drops from time to time, often in the form of clever aphorisms, obviously come from a wide experience and mature judgment. They form a welcome contrast to the Pitkinish and similar pseudo-life-philosophy of the present day.

"The book takes on an increased value when we realize how near we may be to biological discoveries which may be of the highest significance in the psychological world. All the work now going on in the field of the ductless glands, which as Julian Huxley says 'control not only the chemistry of our bodies, but influence the activities of our souls,' may open up solutions to problems which are at the moment unsolved. This may happen to-morrow, or next week, or next month, or next year. Any reader who goes carefully through Dr. Campbell's book (and all who begin it will be carried through it by sheer interest) will be prepared for the next step which psychiatry is preparing to take."

E. P. Lewis,
Toronto.

THE NERVOUS PATIENT. By *Charles Phillips Emerson, M. D.* (Philadelphia: J. B. Lippincott Co., 1935.)

Full blooded specialists of system diseases will probably be irritated by this book, not because they cannot understand it but because they will not. However, they should study it. Nothing spoils an otherwise "good" case for a specialist than the complication of nervous and mental symptoms in the patient. In the preface Professor Emerson states that this book is for general practitioners, not for specialists. He does this, evidently knowing that the practitioners will understand it and that the specialists won't. Heaven help us if we were to take for granted that specialists can never be expected to understand human nature! We really must keep on trying. Professor Emerson's effort is a good one. But while the specialists should study this book in order to bring their specialty into proper perspective with the rest of the individual yet the general practitioner will find the greatest help in crystallizing many impressions which have been merely vague shapes. Here he will find clarification of innumerable cases, very common, in which he has been unable to do more than a good deal of uncomfortable blundering, but because of his faithfulness, has seen the thing through and often with success. Professor Emerson has approached the subject of ill health as it should be approached—that a patient is not only the subject of a local disease but that through his autonomic nervous system, which includes a good deal of the mind, all other systems are upset and adjust more or less successfully—that this process of adjustment may produce symptoms far more disturbing to the patient than the local lesion—that both must be understood and treated—that as time goes on the importance of the original local lesion grows less and less and that no amount of treatment for it, surgical or medical, will cure that patient. Professor Emerson has laid his plan skilfully, it would be easy to be confusing—but he is never confusing. The system diseases are discussed in turn and the possibilities and common functional nervous symptoms which may be a complication or a part of the clinical picture are set in their proper perspective.

The minor and major psychotic states are well described and most readable. Exception could be taken to a few statements. One could not agree, for instance, that arterial hypotension is caused by adrenal insufficiency and that it explains more psychoneurotic symptoms than does hypertension.

TREVOR OWEN, M. D.

GROWING SUPERIOR CHILDREN. By *I. Newton Kugelmass.* (New York: D. Appleton-Century Co., 1935.)

Doctor Kugelmass' new book "Growing Superior Children" provides the modern parent, nurse, or teacher with a comprehensive text of the development and care of the present day child. The subject is treated by a division into four sections, namely: Our Newborns, Our Infants, Our Children and Our Adolescents.

The first section deals with conception and the rudiments of embryology. The many old ideas associated with pregnancy and its influence upon the

fœtus are shown to be without foundation. Heredity is said to be 80 per cent important in forming the personality, characteristics and capacities of the newborn individual. Detailed instructions are contained in this part for the feeding of the newborn during his first few days of life.

The second part of the book is devoted to the infant. The normal growth both mental and physical is outlined and the common departures from normal are mentioned. Artificial feeding is discussed at some length and relatively little space is given to the nursing infant. An interesting chapter deals with the mental processes of the infant and his first reactions. The importance of early habit training is duly emphasized and the reader will find many practical suggestions regarding the initiation of proper hygienic habits. A splendid chapter in this section of the book deals with the prevention of childhood disorders in infancy and discusses not only the common physical ailments but masturbation, temper tantrums, and breath holding as well.

The section concerning "Our Children" considers the child as an individual unlike his fellows in almost every respect. The author deplores the present day tendency toward the "average child" and he emphasizes the child's own individuality. The reader will find a simple but reliable course in dietetics and the importance food plays in growth, development, and the prevention of illness. The problems of enuresis, terrors, jealousy, seclusiveness and the awakening of sex are comprehensively handled and discussed in a non-technical manner. This whole section attempts to give advice relative to developing the individual child to the maximum of his inherent characteristics rather than molding him to the "average."

The final section of the book deals with the problems of adolescence. The signs and symptoms of puberty and their attendant problems are discussed. A large part of this section deals with the emotional upsets and their psychological background that are so frequently seen in the present day. Very constructive information is given regarding social behavior in adolescence.

The book is written in a pleasing style, is beautifully illustrated by many photographs, and is as free as possible from technical terms and intricate explanations. The volume is a valuable asset to the parent, teacher, social worker or psychologist, and is a real contribution to the mental and physical health of future generations.

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NEW PATHWAYS FOR CHILDREN WITH CEREBRAL PALSY. By *Gladys Gage Rogers,* and *Leah C. Thomas.* (New York: Macmillan Co., 1935.)

All those responsible in any way for the physical and mental welfare of a child suffering from cerebral paralysis should read "New Pathways for Children with Cerebral Palsy," by Gladys Gage Rogers and Leah C. Thomas. The book contains much valuable information and a complete list of references but its special quality is the emphasis it lays upon what is undoubtedly by far the most important factor in the care of children suffering from this disability, namely, the profound influence that their physical condition has upon their mental development.

As yet it is not as widely recognized as would be desirable that children suffering from cerebral paralysis appear to be mentally retarded because of their lack of the normal ideo-motor stimuli and their consequent need of the full development of other stimuli. The authors give this aspect of the situation the prominence it deserves and describe in ample detail the methods that have been followed so successfully at Robin Hood's Barn by which the compensatory stimuli are provided. They also stress the fact that nothing is more essential to those upon whom the care of these patients devolves than an unremitting patience. The injury done them by injudicious reference to their incapacities and by placing them in those situations which force their incapacities upon their attention is also dealt with in a detailed and graphic manner. The authors' own experience has completely convinced them of the value of encouragement and the great advantages that are gained by devising forms of play which provide the necessary muscle training.

With its descriptions of appropriate games and its lists of toys and of furniture suitable to the sufferers from these disabilities, and above all by the wholesome, sane and courageous atmosphere that pervades its every page, the book is one which may be recommended to the parents and teachers of every child suffering from spastic paralysis.

J. L. BIGGAR, M. D.

THE 1935 YEAR BOOK OF NEUROLOGY, PSYCHIATRY AND ENDOCRINOLOGY. Edited by *Hans H. Reese, M. D., Harry A. Paskind, M. D., and Elmer L. Sevringhaus, M. D.* (Chicago: The Year Book Publishers, 1936.)

This valuable review is under the same editorship as last year and follows the same plan of arrangement. Each of the three sections is preceded by a brief introduction by the editor of that section, in which attention is directed to the outstanding developments of the year.

Dr. Reese, introducing the section on neurology, indicates three leading directions of research during the past year, in which the anatomists and physiologists, the neuropathologists and clinicians have collaborated. These are studies relating to the diencephalon, the premotor area and the electric potential graphs of the brain.

"The extremely complicated complex of cell groups, of fiber tracts, and of intersynapsic relation [in the diencephalon] has become disentangled from an anatomic point of view, at least. Biochemic and experimental accumulation of data are slowly crystallizing into suggestive clinical syndromes revealing the special function of its nuclei and tracts."

Experimental work on motor function has demonstrated the importance of the premotor area as well as the motor area and made possible a more definite localization of upper motor neuron and cortical lesions.

Electro-encephalographic studies seem to have established specific wave patterns for various cortical areas with suggestive alterations responsive to emotional disturbances or mental activity. The hopes of workers in this field recall those of the histopathologists of thirty years or more ago.

The editor points out that the literature relating to heredity, eugenics and psychoanalysis has not been reviewed, "partly because of limited space and

partly because of the extreme divergence of opinion." It seems unfortunate that so fundamental a matter as heredity could not have found representation.

Introducing the section on psychiatry Dr. Paskind observes that "although not a single perplexing problem is solved the literature abounds with valuable and interesting contributions." There has been much activity in the field of experimental therapeutics, for example, induced convulsions in the treatment of schizophrenia and atropine and ergotamine in manic-depressive psychosis. Hematoporphyrin treatment in depression does not appear to have confirmed the early hopes for it. The fever therapy of paresis has been actively prosecuted and with continuing good reports, "but there is general recognition that this method does not represent the last word in the treatment of paresis, and the search for new methods is continuing."

"Orthopsychiatry and social psychiatry have grown rapidly, but, it must be regretted, not always soundly and under proper critical guidance." The editor points appropriately to the tendency still prevailing in some quarters to "oversell" psychiatry, and to stress over-optimistically the possibilities of prevention. "Environmental influences have been overemphasized and insufficient attention paid to constitutional factors."

"This year's literature also contains a timely and valid plea for the medical (as contrasted with the social, psychologic, and psychoanalytic) approach to behavior disorders of children. It is well within the bounds of possibility that child guidance problems have wandered too far from the domain of medicine, and it is encouraging to see that this trend is being resisted."

Dr. Sevringhaus, who gave an excellent epitome of systematic endocrinology as an introduction to this new section in the Year Book of 1934, presents in the present edition such changes in viewpoint or new discoveries as have appeared within the year. The clinical signs and therapeutic indications approved to date in the various endocrine disturbances are clearly and concisely set forth.

The book contains numerous graphs, charts, diagrams and photographic illustrations, and is provided with a good subject index and an author index.

C. B. F.

In Memoriam.

DR. CHARLES LOOMIS DANA.

1852–1935.

The following memorial of Dr. Dana was prepared by Dr. Frederick Peterson for the Bulletin of the New York Academy of Medicine, and appeared in the January, 1936, issue of that publication. Dr. Peterson and the New York Academy of Medicine have kindly permitted the JOURNAL to reprint the memorial.

Dr. Charles Loomis Dana was born in Woodstock, Vermont, March 25, 1852, and died in Harmon, New York, Dec. 12, 1935, in his eighty-third year. He was of that fine New England stock that numbered among his ancestors two Governors of the Massachusetts Bay Colony (Simon Bradstreet and Thomas Dudley) and the Rev. Seaborn Cotton, and among his cousins near or distant, men like Charles Stanhope Cotton, William Everett, Francis Lee Higginson, Oliver Wendell Holmes, Robert Treat Paine and Charles Sprague Sargent, to mention only a few of the determinants in his élan and career.

He was graduated in 1872 with a B. A. degree from Dartmouth not far from his home town and then became secretary to Senator Morrill of Vermont for three years during which he lived in Washington, D. C. While secretary to the Senator he was attracted to the study of medicine, entering the National Medical College there in 1874, and graduated as M. D. in 1876. In 1875 he became for a year private secretary to Professor Spencer F. Baird, head of the Smithsonian Institute, but resigned in the autumn of 1876 to enter the College of Physicians and Surgeons, New York, from which he obtained his medical degree in the spring of 1877. Then he had two years in Bellevue Hospital under the great Flint and inspiring Janeway. After this he opened an office in West 46th Street and combined some general practice with a year or two of work in the Marine Hospital Service. About this time he made contacts with Drs. Seguin, Hammond and Beard who were practically the only neurologists of that period in New York, and Beard turned over

to him his summer practice for two seasons. This was the beginning of his devotion to the special field of neurology which occupied the rest of his life. He became an active member of the New York Neurological Society and the American Neurological Association, and in the course of time was made President of each of these organizations. He wrote many papers on nervous disorders and finally a standard textbook on nervous and mental diseases. From 1902 onward he was Professor of Nervous Diseases in the Cornell University Medical College in New York. His Alma Mater Dartmouth gave him the degree of LL. D. in 1905 and the same degree was given him at the University of Edinburgh in 1927.

In October, 1886, he was elected a Fellow of the Academy of Medicine of New York and became its President for the years 1905 and 1906. But aside from the brief period in which he was President of the Academy (two years), he always took an active part in its work and proceedings, especially as a trustee (1906-1934) and in connection with its important Public Health Relations Committee of which he was the indefatigable Chairman for seventeen years (1911-1928). In one of his reports as chairman he described the activities of the Public Health Relations Committee (consisting of thirty members representing all branches of medicine): The matters studied by this Committee included the organization, standards, needs of hospitals and dispensaries, care of the defective and delinquent in children's courts, institutions, etc., uniform federal quarantine, improvement of living and working conditions in the city, protection of the health and nutrition of children, special studies of epidemics, instruction to the laity and those engaged in public health work, and many other activities that have brought the Committee into contact with every variety of health, educational, social and municipal problems.

About 1922 this Committee at the instigation of Dr. Dana and Dr. Salmon appointed a sub-committee on Religion and Medicine which made surveys of religious healing throughout America and Europe with a special study of Lourdes, and compiled a bibliography of psychosomatic relations published by the Columbia University Press. The scope of this sub-committee has recently been increased by including together with religious healing many other fields in which the mind has to do with health, such as mental contagions (panics, effects of moving pictures, radio, newspaper

accounts of crimes, etc.), psychotherapy, psychoanalysis in unskilled hands, faith cure, Christian Science, and the like. Dr. Dana would have welcomed this expansion into a Committee on Emotions and Health, for he was very much alive to the changing conditions in the world, and to the analogies between the body physiologic and the body politic.

In his early days of practice the " rest cure " was current therapy, but Dr. Dana with others in the same field came to the conclusion that the best rest for anyone is to do something different. It was this idea that led to his becoming one of the founders of the Charaka Club, the members of which are physicians with various hobbies, such as general literature, painting, sculpture, etching and the like. Among early members were S. Weir Mitchell, Sir William Osler, John S. Billings, B. Sachs, Pearce Bailey, Joseph Collins, Walter James. In the seven volumes of transactions of the Charaka Club are various contributions by Dr. Dana, as for instance The Medicine of Horace, the Cult of Aesculapius, When Apollo strikes the Lyre, the Costume of the Ancient Greek Physician, and a very fine Sonnet to Clio. Few would have suspected him of a lyric urge, although his lifelong devotion to Horace must have augured at least some danger of contagion.

Dr. Dana had a keen provocative mind. He was an excellent teacher and his pupils admired and esteemed him. Dr. Kennedy of his staff at Bellevue and Cornell bore witness to this at a testimonial dinner to Dr. Dana at the University Club in 1926 when he said: " His work there, the devotion which his personality naturally commanded from the young men who eagerly surrounded him, his vision and his power for organization have resulted today in a strong department in Cornell and a unique neurological unit in Bellevue Hospital, where medicine and the poor are both well served under his ægis."

Under a serious and occasionally somewhat austere manner, he hid a warm and generous heart, eager to do his best for the individual and for the cause of humanity. He had too a delightful sense of humor as evidenced by his " Complete Guide to Togo Hill." Dr. Dana was a collector of many things, paintings, prints, books, ceramics, textiles, etc., and Togo Hill which was the name of his summer place at Woodstock, Vermont, was a depository for some

of his treasures. Many visitors came to see him in this sanctuary, so a guidebook seemed necessary. Here are a few quotations:

"Painstaking visitors, who should have rubber-soled shoes and a good sense of equilibrium, having driven to the foot of the Hill will take the Cardiopathic Way. Passing a small Buddhavista of the Ming period they rise one foot in ten until they reach the Bungalow and are confronted with Togo, the 500-year-old marble Dog who keeps off the evil spirits by the enchantments of his face. They will note the carved figure of St. Francis of Assisi in the Oaken Shrine; also the Greek theatre."

"They will walk over the Greek Bridge—the only one in America—designed by an expert in ancient arts from the Metropolitan Museum and constructed by two of Woodstock's favorite sons."

"Below the Pailou are the enamelled iron statues of two Chinese scholars, which formerly stood near a Temple of Confucius in Thibet four hundred years ago. The dogs are genuine Ming (A. D. 1400). The marble headposts came from the fence that surrounds the Summer Palace of the Empress of China. The outlook is pure Vermont, but the yellow umbrella is from Coney Island."

And so Dr. Dana was a pure embodiment of all that is best in New England character, straight and direct in thought, quiet and reserved in manner, equal to any emergency, human and compassionate in all his dealings, but with a fund of quiet humor that made him the most genial of friends and companions.

SYLVESTER R. LEAHY.

1882–1936.

Dr. Sylvester R. Leahy was born in New Haven, Conn., on August 12, 1882. He was educated at the Bacon Academy and Hillhouse High School in New Haven. He received his medical degree from Yale University School of Medicine in 1905. He had a one year substitute interneship at Bellevue Hospital, six months at the Willard Parker Hospital, and 18 months at the Christ Hospital in Jersey City. Very early in his medical career he evinced an interest in psychiatry. On August 8, 1909, he was appointed medical interne at the Kings Park State Hospital, and he was promoted from various grades until he became senior physician at the institution. In January 1913, he was transferred from Kings Park State Hospi-

tal to the Manhattan State Hospital where he remained as a senior physician until September, 1914. He then assumed the position of resident alienist in charge of the psychiatric division at Kings County Hospital. In August 1918, he entered active service in the U. S. Army and was assigned to the Port of Embarkation in New York City. From there he was transferred to Ward 55 of General Hospital No. 1, where he later became the commanding officer. Following his discharge from military service in September 1919, he became assistant alienist in Bellevue Psychiatric Division and he remained there until 1922. He entered private practice in 1920, and in 1922 he received an appointment as police surgeon to the Police Department. He was director of the Mental Clinic of St. Vincent's Hospital from March 1922 to June 1931. In 1926 he became assistant attending neurologist at the New York Neurological Institute, a position which he held until his death. He was instructor in psychiatry at New York University Medical School from 1920 to 1922 and clinical professor of psychiatry from 1922 to 1929. He was associate in psychiatry in Columbia University since 1931.

Dr. Leahy was a student, and he constantly sought information and knowledge in his particular field of interest. He received his B. A. degree from Fordham University in 1922 and his M. A. degree from the same university in 1923. He realized the need of neurological experience even in psychiatric work. He therefore attached himself to the New York Neurological Institute. Appreciating the value of the newer concepts of mental mechanisms, he underwent a didactic analysis in 1932, and was an enrolled student in the many courses given at the New York Psychoanalytic Institute. In the later years of his life he was an active worker in the field of psychoanalysis. He took great interest in all scientific organizations dealing with neuropsychiatry. He was a member of the New York Academy of Medicine, The American Psychiatric Association and the New York Neurological Society. He was one of the organizers, and secretary of the New York Society for Clinical Psychiatry.

Dr. Leahy was a very energetic and arduous worker. He was liked by both his colleagues and his patients. He was ever ready to give a helping hand to those who needed it. He was very tactful and diplomatic in his relationship with people, but always honest and honorable in his dealing with everybody. In the state hospitals,

in the psychiatric wards at Kings County and Bellevue Hospitals, as well as in the other hospitals with which he was affiliated, he always did his work thoroughly and well. He never shirked and very often did the work which others should have done. He belonged to the great number of men who work diligently and faithfully but for whose work others receive credit. He was genuinely cheerful and optimistic, and his presence radiated cheer and happiness wherever he went. He was a true and devoted friend, and he always respected the right and privileges of those with whom he came into contact. He was a pioneer in the field of extramural psychiatry. His advice was sought by many lawyers in medico-legal cases. That he was always honorable both to his profession as well as to those whom he served, is well illustrated in his position as expert in the Gray-Snyder case. Upon his insistence there was a joint examination and a unanimous report of the experts for the defense as well as for prosecution. This was really a milestone in medico-legal testimony.

Of a cheerful and enthusiastic nature, of a hard working disposition, always kind and ever ready to help others, always minding his own business, speaking kindly even of those who deserved other comment, ever ready to study and acquaint himself with newer knowledge in his profession, a kind and gentle man, Dr. Leahy occupied a unique position in neuropsychiatry. His memory will remain green with those who were privileged to work with him.

IRVING J. SANDS.

HUGH ALEXANDER McKAY.

1884–1936.

Dr. Hugh Alexander McKay, superintendent of the Ontario Hospital, New Toronto, died of septicæmia on February 14, 1936, in the Private Patients' Pavilion of the Toronto General Hospital. While he had not enjoyed the best of health since October 1935, his untimely death resulted from an acute illness of a few days' duration.

Born on July 19, 1884, near Southampton, Ontario, in Bruce County where his father still lives, Dr. McKay was of Scottish parentage. His early education began in the local public schools and was continued in the Collegiate Institute at Owen Sound. After

a couple of years in the banking offices of the Canadian Bank of Commerce at Saskatoon and Toronto, he entered the University of Toronto in 1908 in the Faculty of Medicine in the then newly established five year course. While illness delayed his graduation for a year, he gained excellent and varied experience through interneship in the Wellesley Hospital, the Hospital for Sick Children, the Isolation Hospital and in the Toronto General Hospital on the surgical service of Dr. H. A. Bruce, the present Lieutenant-Governor of Ontario. One summer he spent at the Manhattan Lying-in Hospital in New York. Dr. McKay obtained his degree in medicine in June 1914, and at once entered the field of psychiatry, as assistant physician at the Ontario Hospital, Toronto, under Dr. James Forster. During 1914-15 he attended a short course at Dr. William Healy's clinic in Chicago, and in July 1915, he was transferred to the Ontario Reformatory at Guelph as physician and psychiatrist in charge of some one hundred criminally insane. July 1916, brought another transfer, this time to the Military Hospital at Cobourg which in November of that year came under the Canadian Army Medical Corps and the Military Hospitals Commission of Canada. It was really a newly established clearing centre for war neuroses in the Canadian Army. Dr. McKay was appointed officer commanding Cobourg Military Hospital in September 1917, and he was for several months 2d acting D. A. D. M. S. for military district No. 3, Kingston. From May 1918 to February 1920, his military service took him to England where he registered with the College of Physicians and Surgeons. He returned to Canada in February 1920, and at once organized and took charge of the neuropsychiatric service of the St. Anne de Bellevue Hospital in Quebec. This was one of two Dominion hospitals for treatment of neuropsychiatric war disabilities under the Department of Soldiers' Civil Re-establishment, and it served Quebec and the Maritime provinces. In January 1921, Dr. McKay was transferred to Hamilton as assistant superintendent of the Ontario Hospital, and he remained there seven years. In March 1928, he was appointed superintendent of the Ontario Hospital, Toronto, and he was transferred on January 1, 1930, to New Toronto, as superintendent of the Ontario Hospital at that place. His previous experience stood him in good stead for the exacting duties associated with the reorganization and extensive rebuilding program there in progress, and his contribution can scarcely be overestimated.

Dr. McKay was actively interested in The American Psychiatric Association, and he attended its meetings whenever possible. When that body met in Toronto in 1931 he was chairman of the Committee on Arrangements. As a member of its present Committee on Hospitals he attended the meeting in New York in December 1935. He was vice-president of the Ontario Neuro-psychiatric Association for the current year, was a member of the Nu Sigma Nu medical fraternity, vice-president of the New Toronto Rotary Club, and a Scottish Rite Mason. In religion he was a Presbyterian.

Dr. McKay is survived by his widow, Ruby Peterkin McKay, whom he married in 1918.

He was a man of sterling character. He was quiet in manner, cautious, always considerate of others, of sound judgment, possessing a delightful sense of humor, and a staunch and loyal friend. His concern for his patients, and for his staff in general, never allowed him to spare himself any effort for their well-being, and his fairness in dealing with them was markedly characteristic of him. It was a great shock to the staff of his hospital, to patients and their relatives, to the Ontario Department of Health, and to his hosts of friends both in psychiatry and elsewhere, that this outstanding man, one of the senior psychiatrists of the Ontario service, should be so suddenly taken. He was one of nature's noblemen, whose passing creates a most regrettable loss.

E. P. Lewis.

THE RELATIONSHIP BETWEEN BODY BUILD AND SERUM LIPOIDS AND A DISCUSSION OF THESE QUALITIES AS PYKNOPHILIC AND LEPTOPHILIC FACTORS IN THE STRUCTURE OF THE PERSONALITY.

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Previous studies in this laboratory of serum lipoids in men and women who were free from evidences of disease revealed a wide range in total fatty acids and cholesterol. Other workers in the field of the blood lipoids have reported similar wide differences between normal subjects, but have not commented on the significance of these variations.[1] It is only in the literature on constitution and on types of body build in relation to disease that these differences have been discussed and attempts have been made to discover some relationship between certain morphological characteristics and qualities of personality and the blood lipoids. Mjassnikow [2] found that the blood cholesterol of hypersthenics averaged 180 mgms. per cent and that of the asthenics 130 mgms. per cent. Tschernorutzky [3] has reported similar observations. Petersen [4] divided a group of 100 normal male subjects according to differences in a height-weight ratio. In the heavy group the average blood cholesterol was 225 mgms. per cent, while in the slender group it was 210 mgms. per cent.

These authors used the colorimetric methods for cholesterol, and paid little attention to the large errors inherent in these techniques. Furthermore, they have not indicated the manner in which they have ruled out possible endocrine dystrophies. A few individuals with mild myxedema would produce a marked elevation in the average cholesterols of the heavy group. The systematic attempts to discover a relationship between body build and personality characteristics date from the time of Hippocrates. Complicated systems of classification have been developed in Italy, Germany and France which at first sight appear to differ greatly from one an-

other. If, however, the complex subgroupings are ignored, it becomes clear that two large main groups stand out. These may be roughly denoted as the stocky in build at one pole as contrasted with the thin at the other. The megalosplanchnic [5] body build of the Italian school corresponds quite closely to Bauer's [6] brachymorphic and to Kretschmer's pyknic man. The opposite pole of body build which comprises the slender people is called microsplanchnic by the Italians, dolicomorphic by Bauer, and asthenic (leptosomic) by Kretschmer. When this simple bipolar classification of body build is utilized, it is possible to discover a relationship between physique and certain personality traits as well as a tendency to the development of certain diseases. For example, Kretschmer [7] has demonstrated that the people with a markedly pyknic habitus commonly have cyclothymic temperaments and tend to develop manic-depressive psychoses. People with the opposite habitus, the asthenic are, according to Kretschmer, commonly schizothymic or schizoid in personality and are peculiarly prone to develop schizophrenic psychoses. If there is any validity in these relationships it should be possible to demonstrate some sort of relationship between morphological features and the underlying biochemical structure.

Methods.—In order to obviate to some extent the difficulties encountered in attempting to classify people according to morphological characteristics we have resorted to the simplest form of bipolar grouping and have included at each pole only those subjects who represented relatively pure examples. The subjects who have been chosen for the stocky or heavy group have conformed in most respects to Kretschmer's description of the pyknic. This form of body build is characterized by the pronounced development of the body cavities which tend to be round and to have a relatively great antero-posterior diameter, by a tendency to a distribution of fat about the trunk, and by shoulders and extremities which are relatively slight in development in comparison to the trunk. The rough impression in well developed cases is very distinctive; middle height, rounded figure, broad face and rounded head on a short massive neck sitting between the shoulders; the magnificent paunch protrudes from the deep vaulted chest which broadens out toward the lower part of the body. The limbs are soft and rounded and display little muscle relief. The hands are soft, rather short, wide and rather delicately formed.

The subjects selected as representative of the slender group have corresponded roughly to Kretschmer's description of the asthenic (leptosomic). The essential characteristic of these people lies in a deficiency in thickness in contrast to the length and breadth of the body. This deficiency in thickness is present in all parts of the body. People conforming to this extreme form of body build are rather rare, and for this reason it was necessary to use subjects whose physique only approximated this description. Some of these people had fairly well developed muscles, but the antero-posterior diameter of their body cavities was short in comparison with the lateral diameter. The trunk was relatively small in comparison to their extremities, and they had long necks and elongated hands and feet. The term leptosome has been introduced by Kretschmer to denote these subjects.

The serum lipoids were also determined in people whose body build did not conform to either of these extremes and these subjects have been lumped together as an intermediate group.

In selecting the subjects the fact that endocrine disorders may affect the blood lipoids has been considered. For this reason all subjects with obesity that could not be explained by a large ingestion of food, or who showed symptoms or signs of thyroid or pituitary dysfunction or any dysplastic features in body build have been excluded from this study. The basal metabolic rate has been determined in the subjects with either high or low serum lipoids in order to rule out any suspicion of thyroid dysfunction.

Little difficulty was encountered in finding male subjects who conformed sufficiently closely in body build to either extreme as to leave no room for other observers to question their inclusion in one group or the other. Much more difficulty was encountered in finding female subjects who were uniformly pyknic or leptosomic.

The subjects were recruited, with a few exceptions, from various departments of the hospital and the university. They ranged in age from 18 to 50 years, had not changed weight by as much as 10 lbs. in the preceding four months, and with the exception of some of the female subjects were on unrestricted diets. All subjects were in the post-absorptive state when the samples of blood were taken from an arm vein. The methods for collecting the blood, extracting the serum, and measuring the total fatty acids and cholesterol have been described and the limits of error discussed

in previous papers.[8, 9, 10] The values of the total fatty acids are expressed in terms of milliequivalents (m.eq.) These may be changed to mgs. per cent by multiplying by 26.9.

In addition to the description of physique certain qualities of the personality have been selected and rated in roughly quantitative terms. The evaluations were worked out on a comparative basis for the group. In selecting these special qualities many of the concepts and terms described in Kahn's monograph on *Psychopathic Personalities* [11] have been utilized.

The difficulties encountered in estimating the strength of the impulse of a particular individual have made it necessary to be satisfied with an evaluation of the output of energy. Those persons who showed evidence of being able to work effectively both in the day and after dinner year in and year out, and who in addition carried on some social or athletic activities without becoming exhausted have been rated as +++. The people who worked only moderately well during the day and were forced to limit their social and athletic activities in order to maintain their relatively modest work record have been denoted as +. All of the people who did not unquestionably belong in one or the other of the above groups have been rated as ++. The evaluation of the output of energy has been derived from a comprehensive knowledge of the daily activities of each individual. The people who were successful in their particular fields because of intelligent direction and husbanding of their energies have not been rated as +++. On the other hand, some of the individuals rated as +++ have not necessarily stood out on the basis of their occupational accomplishments because of a remarkable diffusion of their activities and a preoccupation with social and athletic pursuits that required an enormous expenditure of energy and time.

The same individuals have been rated according to degrees of sensitivity and also of temperament as expressed in terms of warmth, the very sensitive and the warm being rated +++ and the relatively insensitive and cool as +. The intermediate group has been rated as ++.

An attempt to rate the above subjects according to qualities of introversion and extroversion proved unsatisfactory because there were not enough individuals who presented unqualified features of one or the other group.

As it was necessary to know these people quite well in order to evaluate the above qualities of personality with some degree of certainty, a complete study was made of only 19 women and 24 men.

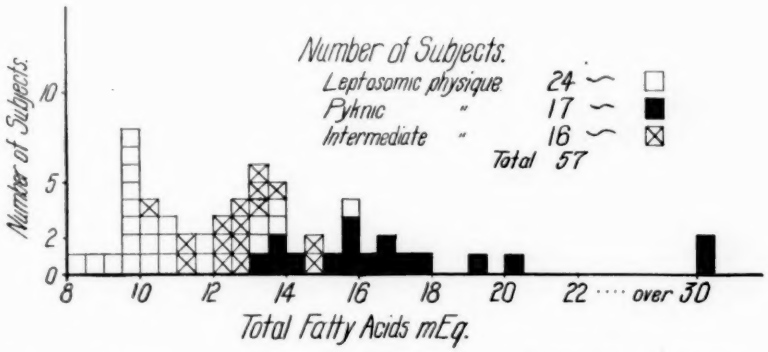


FIG. 1.—RELATIONSHIP BETWEEN BODY BUILD AND SERUM FATTY ACIDS OF NORMAL MALE SUBJECTS.

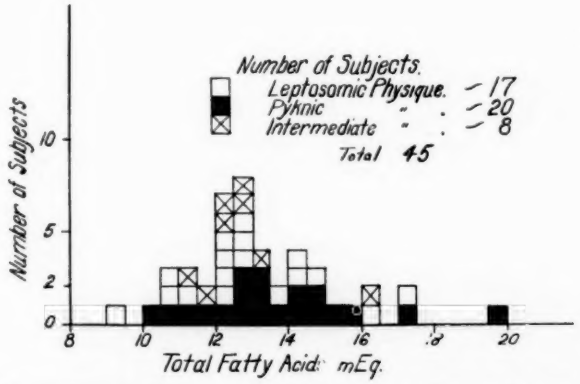


FIG. 2.—RELATIONSHIP BETWEEN BODY BUILD AND SERUM FATTY ACIDS OF NORMAL FEMALE SUBJECTS.

Observations.—The determinations of the serum fatty acids and their relationship to body build for male subjects are represented graphically in Fig. 1 and for the female subjects in Fig. 2. The fatty acids were measured on two different days in 9 of the subjects, and 10 or more times in 7 subjects, and only once in the

rest. The mean value of the measurements on each person has been included in the chart.

A summary of the data is presented in Table I.

TABLE I.

THE RELATIONSHIP BETWEEN BODY BUILD AND SERUM LIPOIDS.
SUMMARY OF TABLES.

Physique.	No. of subjects.	Total fatty acids m. eq.	No. of subjects.	Cholesterol mgs. %
Males:				
Pyknic	17	Mean 17.3	12	230
Leptosomic	24	Mean 10.9	18	168
Intermediate	16	Mean 12.7	8	203
Females:				
Pyknic	20	Mean 13.6	19	205
Leptosomic	17	Mean 12.5	16	196
Intermediate	8	Mean 12.7		

A statistical analysis of the data on total fatty acids shows that in males the difference between pyknics and leptosomics is 8.7 times as large as the probable error of the difference.

For the females the difference is 2.5 times as large as the probable error of the difference.

Inspection of Fig. 1 reveals a striking relationship between low serum fatty acids and leptosomic physique of males. In the case of the pyknic males none of the subjects had low values and the great majority had high fatty acids. That there is a close relationship between body build and fatty acids is also borne out by the statistical analysis which indicates that for males the difference in fatty acids between pyknics and leptosomes is 8.7 times as large as the probable error of the difference.

This clear cut relationship between body build and serum fatty acids does not hold for the female subjects. In Fig. 2 there are apparently as many leptosomic females with high fatty acids as may be found in the subjects with pyknic physiques. It should be noted, however, that of the 49 female subjects the serum fatty acids were below 10 m.eq. in only one case, in contrast to the 12 leptosomic males below this figure. Furthermore, statistical analysis indicates that the pyknic females tend to have slightly higher serum fatty acids than do those of leptosomic physique, the difference being 2.5 times as large as the probable error of the difference.

Serum cholesterol as well as fatty acids was studied in 38 of these male subjects. These results as presented in Fig. 3 indicate that the level of serum cholesterol is directly related to body build as

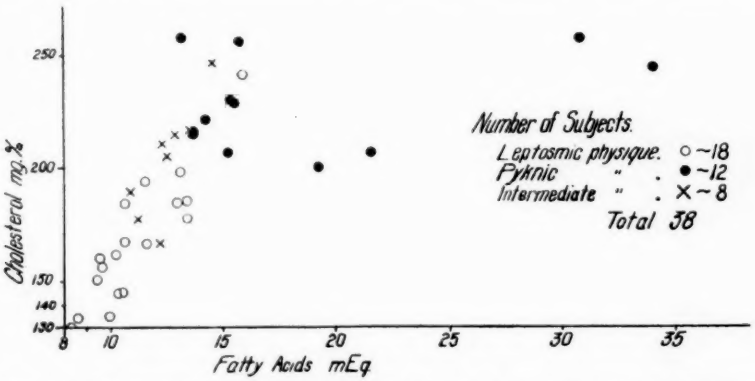


FIG. 3.—RELATIONSHIP BETWEEN BODY BUILD, SERUM FATTY ACIDS AND CHOLESTEROL IN NORMAL MALE SUBJECTS.

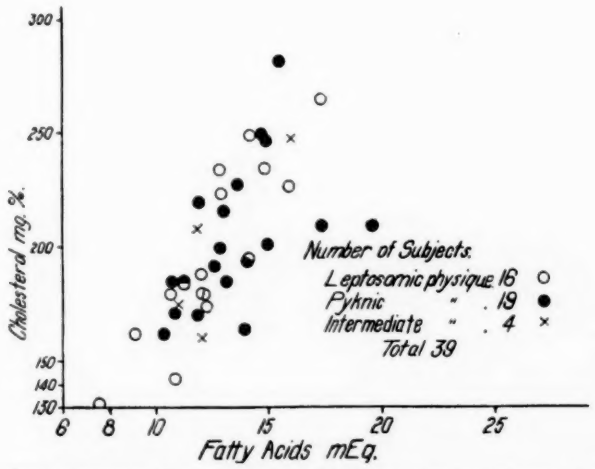


FIG. 4.—RELATIONSHIP BETWEEN BODY BUILD, SERUM FATTY ACIDS AND CHOLESTEROL IN NORMAL FEMALE SUBJECTS.

has been shown in the case of the fatty acids. A study of the cholesterol in addition to the fatty acids in 39 of the female subjects (Fig. 4) showed much overlapping. Although the mean cholesterol values for the pyknic group were slightly higher than

those for the leptosomic group, the differences were not sufficiently large to be statistically significant.

TABLE II.

RELATIONSHIP OF OUTPUT OF ENERGY TO PHYSIQUE AND LIPOIDS.

MALES.

Subject No.	Output of energy.	Physique.	T. F. A.
X	+ + +	P	17.2
W	+ + +	P	17.9
Q	+ + +	P	30.9
O	+ + +	P	14.3
J	+ + +	P	15.6
Total	5 + + +	5P	Mean 19.2
V	+ +	P	16.6
U	+ +	P	16.5
T	+ +	P	16.4
R	+ +	P	15.8
P	+ +	P	21.5
N	+ +	P	17.6
M	+ +	L	13.5
L	+ +	L	15.8
I	+ +	P	15.4
H	+ +	P	13.8
F	+ +	L	10.6
E	+ +	L	13.5
B	+ +	L	12.8
A	+ +	L	13.2
Total....	14 + +	6L 8P	Mean.. 15.2
S	+	L	9.6
K	+	L	10.0
G	+	L	9.5
D	+	L	10.8
C	+	L	11.7
Total	5 +	5L	Mean... 10.4

An analysis of the observations as to output of energy, warmth, sensitivity, physique, and amount of serum fatty acids, showed a definite relationship between output of energy and the serum fatty acids and body build. The qualities of warmth and sensitivity as

roughly quantitated in terms of +, ++, and +++ tended to be distributed indiscriminately regardless of kind of body build or level of serum fatty acids. Only the positive findings are presented in Table II in which it may be seen that all of the men who rated as +++ in output of energy were pyknic in physique and had

TABLE III.

RELATIONSHIP OF OUTPUT OF ENERGY TO PHYSIQUE AND LIPOIDS.

FEMALES.

Subject No.	Output of energy.	Physique.	T. F. A.
1	+++	L	17.5
3	+++	L	12.5
4	+++	L	13.6
5	+++	L	16.1
11	+++	P	14.7
Total	5+++	4L, 1P	Mean.. 15.0
6	++	L	12.0
7	++	P	10.4
8	++	P	14.2
15	++	P	12.0
16	++	P	9.6
18	++	P	14.9
19	++	P	11.5
20	++	P	17.4
Total	8++	1L, 7P	Mean.. 12.8
2	+	L	12.4
9	+	P	12.9
10	+	P	13.2
12	+	L	9.2
14	+	P	11.9
17	+	P	14.0
Total	6+	2L, 4P	Mean.. 12.8

relatively high serum fatty acids. The men rated as + were all leptosomic in body build and had low fatty acids. The studies on the women (Table III) are again not clear cut but it is noteworthy that subjects rated as +++ in output of energy had high fatty acids with one exception. The subjects rated as + tended to have low or average values for fatty acids.

Discussion.—The wide range in serum lipoids, total fatty acids 8.3 to 34 m.eq., cholesterol, 130 to 280 mgs. per cent is similar to that reported by previous investigators. A number of workers have considered such high values abnormal and have attributed them to some obscure disease process. This is probably an unwarranted conclusion. Two of the male subjects included in the above report, one of whom had extremely high and the other very low fatty acids, 34 m.eq. and 8.3 m.eq. respectively, have been studied repeatedly over a period of a year. The high or low lipoids remained relatively constant and characteristic for each of these men and no evidence of either past or present disease process or endocrine disorder could be discovered. In fact both of these men were exceptionally healthy individuals. The lipoids of 6 other normal subjects have been followed for 1 to 3 years. Although certain seasonal fluctuations have been observed, the general level of the lipoids of each subject has remained relatively constant. It is therefore reasonable to conclude that high or low or average lipoids represent a fundamental characteristic of an individual's constitutional makeup. Furthermore the evidence presented in Figs. 1 and 3 indicates that in normal men there is a close relationship between pyknic body build and high lipoids on the one hand, and leptosomic physique and low serum lipoids on the other. In view of this close relationship between physique and lipoids it is suggested that the measurement of the lipoids should be used in the future as one method of discovering certain underlying pyknophilic or leptophilic qualities in a person. There is also the possibility that the level of serum lipoids may constitute a clue to a susceptibility to the development of certain diseases.

The evidence presented above as to the relationship between output of energy and lipoids cannot be considered conclusive. Yet it is sufficient to warrant the suggestion that the amount of serum lipoids may offer an indirect measure of the reserves or stores of energy in an individual.

In 1933 Kahn [12] pointed to the fact that no purely pyknic or leptosomic person actually exists, and that when it is considered that every person is the result of innumerable crossings, it is a marvel that there are so many individuals who correspond quite closely to one or the other of the two polar types. He also observed that the terms pyknic and leptosomic as generally used imply

morphological, functional and developmental factors which are related to two different sets of potentialities. He then suggested that these potentialities be termed pyknophilic and leptophilic in order to stress their significance in the determination of functional and evolutional types as well as their relationship to the two types of body build.

This concept has been applied in the evaluation of the data presented above. The morphological feature of body build denoted as pyknic has been considered as one pyknophilic manifestation. Serum fatty acids above 13.5 m.eq. have been taken as a second pyknophilic manifestation and as a sample of the biochemical

TABLE IV.

ANALYSIS OF THE PYKNOPHILIC AND LEPTOPHILIC QUALITIES OF NORMAL MEN.

Number of P or L qualities.	Numbers of subjects from Table II.	Totals.
3P	j o g w x	5 } 13 P
2P	h i n p r t u v	8 }
1P	None	
1 P 1 L	a e m	3 Mixed
1 L	b	1
2 L	f g l	3 } 8 L
3 L	c d k s	4

1 P represents one of the three pyknophilic qualities.
1 L represents one of the three leptophilic qualities.
See text for description of these terms.

makeup of the individual. The exceptional output of energy rated as +++ has been considered as a third pyknophilic quality and as representative of the functional factors. In a similar fashion leptosomic body build, fatty acids below 11.5 and output of energy amounting to +, have been classed as leptophilic qualities. Fatty acid values lying between 11.5 and 13.5 m.eq. and output of energy rated as ++ obviously rank as intermediate values and have been neglected as neutral qualities. The results of this analysis are presented in Table IV. Only 5 of the 24 males possessed all three pyknophilic qualities (3P) but 8 rated as 2P with the third quality ranking in the intermediate group.

It is suggested that the 2P group is probably representative of the most common variety of male of pyknic physique. Eight of

the predominantly leptosomic men were free of one or the other of the pyknophilic qualities. Out of the entire group there were only 3 who possessed a pyknophilic as well as a leptophilic quality. These findings constitute further evidence that a demonstrable relationship exists among at least three of the functional and biochemical features that make up the person who represents a relatively pure form of either the pyknic or leptosomic body build.

A similar analysis of the data on the female subjects yielded results which lay in the same direction as in the case of the males, but there were 9 who possessed both pyknophilic and leptophilic features. Consequently the results in such a small series were rendered inconclusive.

That the results in the case of the females are not as clear cut as those for the males may be due to a number of factors. The variations in development of the breasts and the deposition of fat about the thorax and the pelvis make it extremely difficult to distinguish morphological types of females on a descriptive morphological basis that bears any close relationship to a similar classification of males. This difficulty has been recognized by previous workers. As noted above the dietary habits of many of the female subjects were decidedly different from the males in this group of subjects. Dieting might well account for some of the low values in the pyknic females but could scarcely account for the more striking exceptions because it requires an extreme degree of malnutrition to lower the serum fatty acids by as much as 6 to 8 m.eq.[13] Certain peculiarities in the endocrine systems of these female subjects that cannot be detected by present day methods may account for the low values in some of the pyknics and for the high lipoids in some of the leptosomic females.

In this connection it should be emphasized that obesity in a person is not necessarily associated with high lipoid values. This is true of a number of the normal female subjects. Also recent studies in this laboratory of obese subjects who displayed evidence of hypogenitalism, hirsutism and peculiar distribution of fat have disclosed low serum fatty acids and cholesterol.

The wide range in normal serum lipoids indicates that much caution must be exercised in interpreting moderately high or low values as being indicative of disease. For example, the subjects of pyknic physique with fatty acids of 25 m.eq. and cholesterol of

260 mgs. per cent in health might in the course of disease suffer a depletion of 30-50 per cent of their blood lipoids and yet remain within the range which would be normal for healthy male leptosomes. It is therefore necessary in the interpretation of the significance of any given set of serum lipoid values to consider among other things the physique of the person under study.

Conclusions.—Men in good health were selected from a university community on the basis of their conforming closely to one extreme or the other of a bipolar classification of body build. The individuals who corresponded in most respects to Kretschmer's description of the pyknic in physique represented one extreme, and the slender individuals, the leptosomes, the other extreme.

It was found that the serum lipoids, (total fatty acids and cholesterol) were consistently higher in the 17 men of pyknic body build than they were in the 24 men of leptosomic physique. The serum lipoid values of 16 normal men who were neither pyknic nor leptosomic in build were found to correspond closely to the mean value for all of the 57 males. The difference between total fatty acids of the pyknics and leptosomes was marked, being 8.7 times as large as the probable error of the difference.

The serum lipoids were studied in 45 healthy women who had been selected and grouped on the same criteria as for the men. The differences were not clear cut and there was much overlapping in the values. However, the serum fatty acids tended to be higher in the pyknic women than in those of leptosomic body build, the difference being 2.5 times as large as the probable error of the difference.

Pyknic body build, high energy output, and high lipoid values were considered as pyknophilic factors. Leptosomic body build, low energy output, and low lipoid values were considered leptophilic factors. Among the male subjects fair correlations prevailed; not so among the females. If psychological factors were added the correlations became increasingly unclear in both sexes.

These findings suggest that a relationship exists among at least three of the morphological, biochemical and functional factors that make up the person who represents a relatively pure form of either the pyknic or the leptosomic physique.

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THE CULT OF CURABILITY, ITS RISE AND DECLINE.

A Page From Psychiatric History.*

By ALBERT DEUTSCH.

The second quarter of the nineteenth century witnessed a remarkable phenomenon in the theoretical approach to insanity. We refer to the introduction and rise of a "cult of curability," involving an astonishing revolution in psychiatric theory in America, with tangible influences on the erection of state mental hospitals during the period of its ascendancy.

Up to the third decade of the century, the general attitude regarding the curability of mental disease was dominantly pessimistic. Despite the encouraging experiences of men like Rush in this country, and the Chiarugis, Pinels and Tukes abroad, it was widely believed that insanity was an incurable affliction. "Once insane, always insane," went the popular adage. About 1830, however, the pendulum of opinion on this subject swung violently to the opposite extreme. The old notion that none, or at best, very few, of the

* This article forms a part of the forthcoming book "Towards Mental Hygiene—The Story of the Mentally Ill in America from Colonial Days to the Present," by Albert Deutsch. The manuscript was prepared under a grant from The American Foundation for Mental Hygiene and the book will be published in September by Doubleday, Doran and Company of Garden City, New York.

The *raison d'être* of this book is offered by Mr. Clifford Beers, founder of the Mental Hygiene Movement, who says: "My associates and I have, for a long time, felt the need for bringing together in one book of reasonable length, the story so ably and so readably presented by Mr. Deutsch in this new work. Behind his narrative lies a painstaking study of hundreds of treatises, reports, articles and pamphlets, as the index and bibliography of the book will show." The editor has had the privilege of reading a considerable portion of the manuscript of this work and believes that it represents a historical study of great value. The Journal is glad to print in advance a portion of one of the chapters.

The book, which will be illustrated, will contain about 350 pages and will sell for $2.50. Advance orders may be sent to the National Committee for Mental Hygiene, 50 West 50th Street, New York City.

mentally ill could be cured was suddenly discarded. In its place, the conviction took root that all, or nearly all, were curable. Wild claims were widely circulated, and given full credence, on the probabilities of recovery in mental cases. "Insanity is the most curable of all diseases," it was dogmatically declared. "At least 90 per cent of all cases of insanity can be cured," it was solemnly asserted. Extravagant claims indeed, when compared with the cold statistics of our time.[1] These, regrettably enough, indicate that even with our vastly improved methods of care and treatment, about 15 per cent of all cases admitted into state mental hospitals may be expected to recover, with an additional 25 per cent improved sufficiently to warrant discharge.

Around the aforementioned over-optimistic notions, there grew up a veritable cult of curability, numbering among its devotees not only laymen, but most of the superintendents of institutions for the insane. Indeed, it was the latter who contributed the major stimuli to the spread of the fallacy of easy curability. It is a regrettable fact that many among the psychiatric fraternity were fully conscious of the error of the doctrine they were advancing, or at least supporting. It may be said in extenuation that some who knew better paid lip service to the idea of large-scale curability in the sincere belief that they were promulgating a "white lie." They hoped thereby to gain a great end, namely, the establishment of more and better institutions for the mentally ill. Others deliberately doctored their statistics, crediting themselves with staggering recovery records, in order to stay abreast of their fellow practitioners who were doing the same thing. A vicious cycle of fallacies was thus kept in motion, fueled by the mutual desire, if not necessity, on the part of institutional heads to "keep up with the procession."

For the origins of this significant phenomenon, we must turn back to old England, the source of many practices and theories

[1] Of course, no inference is intended here that 90 per cent curability in mental disease is unattainable in the future. The terms, "cult of curability," "curability myth," etc., used in this article refer strictly to the extravagant claims and over-optimistic beliefs, as contrasted to extremely modest actual achievements, of the period under discussion.

The figures on expectation of recovery and improvement are based on the *United States Census Report on Mental Patients in State Hospitals, 1931 and 1932.* (U. S. Printing Office, Washington, D. C., 1934.) See Statistics on p. 10 of this pamphlet.

(not all equally commendable) adopted in America. Let us go back to King George the Third, whose reign, in certain broader respects, was of great importance in the historical development of the American nation.

King George the Third, as we know, experienced periodic attacks of mental illness, the last of which ended in his death. In his early attacks, he was attended by a remarkable person, Dr. Francis Willis. The latter was a minister turned physician who specialized in mental disorders and maintained a private asylum, from which he received very lucrative returns. The monarch reposed great confidence in him, and made him chief attendant, over the protests of the regular staff of royal physicians. In the course of the famous parliamentary investigation into the King's illness, held in 1789, Dr. Willis advanced the startling claim that he cured nine out of every ten mental patients he treated. Naturally, his assertion fell like a bombshell among a generation brought up in the belief that insanity was, with few exceptions, incurable. When asked to furnish proof of his claim, he could offer no definite figures on either the total number of patients he had treated, or the number that had been cured. When further pressed for specific data, he replied that his claim was based mainly on the grounds that the first 15 patients treated by him had recovered, and that subsequently as many as 10 patients at a time had been discharged as cured from his private asylum. His statement was ridiculed by most contemporary physicians, who suspected, not without reason, that Dr. Willis was somewhat of a charlatan. But the boast had an element of dramatic force which left a long-lasting impression.

In 1820, the question of high-percentage recoveries was again brought forward by Dr. George Man Burrows of England in a pamphlet entitled, *An Inquiry into Certain Errors Relative to Insanity*. It was one of the major theses of this little work that mental illness was far more amenable to therapeutic treatment than people supposed at the time. To consider insanity incurable was a pernicious error, Dr. Burrows declared. On the contrary, insanity was highly curable. As proof, he asserted that he himself had cured 81 per cent of all mental patients—including those in " a state of fatuity, idiocy and epilepsy "—in his private asylum. Of " recent " cases (meaning cases of less than one year's duration), he claimed to have cured an average of 91 out of 100. In all, Dr. Burrows

had treated 296 patients, a total which would hardly seem sufficient to draw any generalizations from, even if the alleged percentage of recoveries in this particular instance were substantiated. Dr. Burrows' book was widely read at home and abroad, and his contentions seem to have been uncritically accepted by many of his fellow practitioners.

Another book written by an Englishman proved a strong stimulus to the spread of the idea of large-scale curability in America. Curiously enough, the author was a man whose interest lay far afield from the subject of insanity, and the book was a tale of personal travels—a type of literature much in demand in that day. In the years 1827-28, Captain Basil Hall, a retired officer of the Royal Navy, made a tour through North America. Upon his return to Great Britain, he wrote a book on his travels which excited a great deal of interest and discussion.[2] In America he had visited a number of benevolent institutions, including the Retreat for the Insane at Hartford, Connecticut, which had been opened in 1824, and had set down his impressions in his book. Both the Retreat and its superintendent, Dr. Eli Todd (then recognized as the foremost American superintendent of a mental hospital) received his unstinted praise. He spoke of the "noble establishment" as "a model, I venture to say, from which any country might take instruction."[3] In substantiation, Captain Hall quoted a startling passage from the report of the Retreat for 1827, to the effect that, "During the last year, there have been admitted 23 recent cases, of which 21 recovered, a number equivalent to 91 3/10 per cent." This phenomenal record was then compared with statistics of the "most ancient and celebrated institutions in Great Britain," which could boast of only 34 to 54 per cent cures of recent cases. Furthermore, the figures in two "highly respectable institutions" in America each showed average recoveries in recent cases of only 25 and 31 per cent.

The remarkable claims of the Hartford Retreat very likely would have been buried in the dust-gathering pages of the original report were it not for the adventitious visit of Captain Hall and the remarks made in his widely-read book. America had not yet thrown

[2] Hall, Captain Basil. *Travels in North America in the year 1827 and 1828.* Philadelphia, 1829. 2 v.

[3] *Ibid.*, v. 1, p. 314.

off the yoke of the "colonial complex" which bound her to Britain culturally: opinions of English visitors on American manners, customs and institutions, favorable or otherwise, were still given exaggerated respect. Moreover, in this instance, the commendation from Captain Hall was particularly impressive since his general notes on American life and institutions were so contemptuous as to arouse great indignation on this side of the Atlantic.[4] Hall's remarks on the Hartford Retreat were repeatedly quoted in the American newspapers and periodicals. Largely because of the publicity received in this roundabout manner, the Retreat soon gained the reputation of being the most successfully operated institution for the mentally ill, not only in the United States, but in the whole world. Its unprecedented record of cures became a mark for the other institutions to aim at. A rivalry was thus set afoot which led to a fantastic race for high recovery rates. The immediate effect of the "curability craze" was beneficial in that it proved a potent factor in the building of public mental hospitals in the United States. But from the long-range point of view, the fallacy proved to be decidedly injurious. It led to an unhealthy competition among heads of mental hospitals that lasted many years. Grotesque methods of compiling institutional statistics were resorted to in order to keep alive the fiction. Finally, as we shall see, the reaction following the exposure of the fallacy had a decidedly harmful effect on the cause of the mentally ill. Nonetheless, during its period of ascendancy, the curability cult proved an important factor in the rise of state institutions for the insane in this period.

The claims of Willis and Burrows and the impressive record of the Hartford Retreat, founded though they were on the treacherous sands of unscientific statistics, were accepted at face value by an uncritical generation. Skillfully exploited as major arguments for the erection of mental hospitals they constituted, indeed, a powerful stimulus to the asylum-building movement during the 1830's and '40's. Of course, there were others factors favoring this trend,

[4] It is interesting to note that when Mrs. Frances Trollope's famous essay in derogation of the American people, *Domestic Manners of the Americans* was published several years later (1832), it was at first widely attributed to Captain Hall in the belief that he was the only foreigner unjust enough to cast such aspersions on the social life of the country. A saying of the time ran: "Either Captain Hall is Mrs. Trollope in breeches, or Mrs. Trollope is Captain Hall in petticoats."

some of which have already been described. Not the least among them were the really solid achievements of the early corporate hospitals (Frankford, McLean and Bloomingdale Asylum, and the Hartford Retreat itself). These institutions afforded impressive demonstrations of the truth that a fair proportion of the mentally sick *could* be cured. Their existence did much to dispel the hopeless atmosphere then surrounding the subject of care and treatment of the insane, and contributed to the optimism necessary to the advancement of the hospital idea.

About 1830, a vigorous movement that had for its object the erection of suitable state hospitals for the insane manifested itself simultaneously in several states. This movement found its first concrete expression in Massachusetts with the opening, in 1833, of the State Lunatic Hospital at Worcester.

A report drawn up the previous year by Horace Mann, as head of a legislative committee appointed to oversee the building of the state hospital at Worcester, reflected the changing attitude toward the curability of insanity. "Until a period comparatively recent," it stated, "insanity has been deemed as an incurable disease. The universal opinion has been that it was an awful visitation from Heaven, and that no human agency could reverse the judgment by which it was inflicted. During the prevalence of this inauspicious belief, as all efforts to restore the insane would be deemed unavailing, they of course would be unattempted. It is now abundantly demonstrated that with appropriate medical and moral treatment insanity yields with more readiness than ordinary diseases." This cheering doctrine had passed beyond the realm of mere theory, the commissioners proclaimed. It was already "established by a series of experiments, instituted from holier motives, and crowned with happier results, than any ever recorded in the brilliant annals of science." Where was their proof? They triumphantly pointed to the claims advanced by Willis and Burrows, and to the records of the Hartford Retreat, indicating, cumulatively, that fully 90 per cent of recent cases of mental illness could be cured. (Note the extreme to which the pendulum of opinion had swung, in its oscillations between pessimism and optimism!) The Worcester State Hospital was opened in 1833, under the superintendency of Dr. Samuel B. Woodward. In accordance with the recommendation of the Mann Committee, the first patients were drawn largely from the correctional institutions of the state.

Simultaneously with the agitation for a state hospital in Massachusetts, a similar drive was being pressed in New York. The movement in the latter state was initiated by the liberal governor, Enos T. Throop, in 1830, when he recommended in his annual report the appointment of a legislative committee to study the conditions of the insane. The legislature complied and, after a year of investigation, a committee turned in a long and learned report, ending with an urgent plea for a state hospital such as the one established in Massachusetts that year. The argument of near-perfect curability was again effectively put forward, in terms even bolder than in the Massachusetts commission report. Basing its claims on the statements of Willis, Burrows and the Hartford Retreat—this trinitarian authority was invoked in state after state by the proponents of mental hospitals [5]—the committee sweepingly declared that every case of mental disease was curable, "unless there be some structural defect, some mal-conformation of the cranium or the brain."

Knowing the ways of legislators, and the arguments best calculated to sway their judgment, the committee brought forward the argument of easy curability not only on humanitarian grounds, but on the even stronger basis of economy. As long as custody rather than cure remained the uppermost purpose of institutionalizing the insane, it was argued, hundreds of mental cases were condemned to life confinement, with no opportunity for curative treatment, at the expense of the public treasury. Now, if these persons were provided with hospital attention their stay in institutions, in a large number of cases, would be greatly shortened. In the long run, such a situation would result in considerable savings for the state. Moreover, those discharged recovered from a hospital could thenceforth take their places as producing members of society, with further economic benefits accruing to the state.

Condemning the prevalent methods of selling the insane poor at public auction or incarcerating them in jails and in the strong rooms

[5] It is interesting, in this respect, to point out that legislative reports of this period favorable to the establishment of state hospitals usually bore striking resemblances to one another. It was not uncommon for a report to consist almost entirely of direct quotations and paraphrases from previous reports submitted in other states. Passages bearing on curability and citing the three aforementioned authorities were invariably couched in identical phrases.

of county alms-houses, the committee charged that "the whole system as to pauper lunatics and idiots is radically defective. It makes no provision for recovery. It does not effect the best mode of confinement. It does not sufficiently guard the public from the consequences of furious madness. And it is the most expensive method of providing for them." [6] The legislature, however, was slow to respond to the eloquent plea of the committee, supplemented though it was by the repeated recommendations of Governor Throop and his successor, Governor Marcy. Important material factors were involved in the delay, namely, the financial crisis of 1834 and the severe economic depression of 1837, which turned the attention of the lawmakers to the problems of raising money rather than spending funds on "new fangled projects." It was not until 1843 that the first state hospital was finally opened at Utica, with Dr. Amariah Brigham as the first superintendent.[7]

In the decade between the opening of the hospitals at Worcester and Utica, nine new public hospitals for the mentally ill were opened in various parts of the United States. Seven of these were either state-owned or state-supported institutions. The Tennessee Lunatic Asylum at Nashville was established in 1832 and opened 1840. The Maine Insane Asylum at Augusta was established in 1834 and opened 1840. The Vermont Asylum for the Insane (later the Brattleboro Retreat) at Brattleboro was established in 1835 and opened 1836. The Ohio Lunatic Asylum at Columbus was established in 1835 and opened 1838. The Georgia Lunatic Asylum at Milledgeville was established in 1837 and opened 1842. The New Hampshire Asylum for the Insane at Concord was established in 1836 and opened 1842. In Pennsylvania, the department for the insane in the first American general hospital was removed to a site in West Philadelphia in 1841 as a separate institution, and was renamed the Pennsylvania Hospital for the Insane, with Dr. Thomas S. Kirkbride appointed as its first superintendent.

During this period, methods of reporting statistics on recovery rates and other matters in institutions for the mentally ill were

[6] *Report of the Select Committee on Bloomingdale Hospital and the propriety of building a new establishment for the Insane.* (*New York Assembly Documents,* 1831, v. 3, Document 263.

[7] "An Act to Authorize the Establishment of the New York State Lunatic Asylum" was passed March 30, 1836, but the ensuing depression of 1837 delayed its building, and it was not completed until 1843.

characterized mainly by confusion. The science of statistics was still in its infancy, and its application in the various fields of social phenomena was generally of a crude character. The excellent pioneering work of Esquirol (the worthy successor of Pinel at the Salpêtrière in Paris) was particularly effective in demonstrating the value of tabulating mental hospital records. There was, at first, a great deal of stubborn opposition to the introduction of statistical reporting. Many asylum superintendents ridiculed the idea. It was utter nonsense to attempt any kind of enumeration, they felt. Some authorities based their opposition to statistical reporting on the quite reasonable grounds that real knowledge concerning mental diseases—classification, causes, symptoms, cures, etc.—was still so meagre that no degree of accuracy could be attained through the use of statistical recording. In fact, they said, such reporting could only create misleading impressions. (This actually proved to be the case.) A heated controversy on this score was carried on throughout the 1840's, with Dr. Pliny Earle, an outstanding medical superintendent of the time, leading the statistical defenders. In an article published in 1849, Dr. Earle vigorously championed the use of enumeration against the attacks of sceptics. Admitting the prevailing weaknesses in statistical reporting on the part of American institutions, he wisely counseled that it was necessary not to abolish the practice, but to improve and to raise it to a really scientific level.[8]

A glance at the records emanating from mental hospitals during the period under discussion affords a significant index as to why a pessimistic view of the utility of statistics in this field was held even by many intelligent persons. Institutional tabulations were generally vague and contradictory, woefully lacking in either uniformity or precision of data. Take the tables of " Causes " of mental cases, which naturally occupied a prominent place in contemporary case reports. In the tabulated report of a famous institution, the ailments of five different mental patients were respectively attributed to " domestic trouble," " jealousy," " infidelity of wife," " ill-treatment of parents," and " abuse of husband." These blurred distinctions, it will be agreed, were hardly calculated to throw light on the individual cases. In some tables, the laconic etiological note, " dis-

[8] Earle, Pliny. " Statistics of Insanity." American Journal of Insanity, 1849, v. 6, p. 145-9.

appointment," was conveniently used to cover a multitude of ills. Others, with a greater attention to detail, but with hardly less confusion, laboriously enumerated the various types of "disappointments" regarded as the determining causes in many cases of mental illness: "disappointed love," "disappointed affection," "disappointed ambition," "disappointment in business," "frustrated enterprise," etc. Even the term "disappointed expectation" was entered as a supposed cause. Among other vague "causes" listed in contemporary statistics were: "ecclesiastical difficulties," "mental excitement," "mortified pride," "perplexity in investigating Scriptural prophecies," "novel reading," "tobacco," "ill health," "repelled eruption," "blasted prospects," "dread of a future state," "close mental application," and "Millerism." [9]

Another interesting feature found in early mental hospital statistics is an exaggerated emphasis on quantitative data, corresponding to a well-marked prevailing tendency in that direction. In general, this insistence on the importance of quantitative analysis of social phenomena was to exert a healthy influence. But in some instances it was carried to strange extremes. For example, the first annual report (1843) of the Utica State Asylum contains a table intended to serve as conclusive proof of the health-promoting effects of the institution, scrupulously measured in terms of masses. We present a specimen item from this table:

	Pounds.
Total weight on admission of 276 patients	34,856
Total weight of those discharged and remaining, December 1st	35,825
Increase in weight of all received	1,029
Total increase in weight of the 53 patients discharged cured	306

[9] "Millerism" was the popular name given to the doctrines of William Miller, who founded the Adventist sect in 1831. Miller predicted that the year 1843 would witness the end of the world and the commencement of the millennium. His prediction gained a remarkably wide circulation and acceptance, and many suicides were attributed to the terror induced by belief in its inevitable fulfillment. It undoubtedly was a precipitating factor in many cases of mental illness. In one year, 1843 (the year which Miller had prophesied, would witness the destruction of the universe) no less than 32 patients admitted into three different Northern institutions were officially recorded as victims of "Millerism."

Still another indication of the prevailing looseness and confusion in statistical reporting may be mentioned. In 1844, Dr. J. R. Allen, a deservedly well-known superintendent of the Eastern Lunatic Asylum at Lexington, Kentucky, set himself the ambitious task of compiling the statistics of the institution for the first twenty years of its existence. After listing an impressive percentage of patients "cured" during this period, Dr. Allen naively remarked that a large proportion of these "cures" so recorded were not actually so registered on the books, but that he had reported them "recovered" because there was no record of their condition at the time they were discharged.

Shocking though this might be to modern statistical standards, it constitutes but a mild indication of the liberties taken with figures during the heyday of the curability cult. What excesses of imagination went into the making of recovery statistics in that golden age of optimism!

We have traced, previously, the origin and early development of the cult of curability from Willis to the 1827 report of the Hartford Retreat, given wide publicity through the rather extraordinary medium of a light travel book written by a retired British naval officer.[10] The pleasing belief in easy curability which consequently took hold of the popular imagination was strengthened with the years as statistical reports seemed to prove that other institutions for the insane were not only equalling, but actually surpassing the Hartford Retreat record of 90 per cent cures. In fact, the climax was not reached until the claim of 100 per cent cures was finally advanced by at least two eminent superintendents of mental hospitals.

To what may we attribute these remarkable records, beside which our modest present-day claims of an average of about 15 per cent recoveries in institutionalized mental cases compare like candles to the sun? Is it because mental diseases were then of a less serious nature than they are today, and more amenable to treatment? Or was the system of therapeutics practiced in that period superior to

[10] No disparagement of the Hartford Institution is here implied. It was indeed one of the most estimable mental hospitals, as we have elsewhere stated. An explanation of the curious concatenation of errors behind these startling statistics is forthcoming.

present-day methods? Hardly. Where, then, may we properly seek an explanation of the phenomenal records of cures rolled up in the decades following 1830? Mainly, we think, in these directions: (1) the irresponsible, artless manner in which statistics on the subject were compiled; (2) the peculiar set of circumstances which encouraged otherwise level-headed institutional officers to perpetuate a fallacy of which many were conscious; (3) the convenient use of the term "recent" cases (meaning cases of anywhere from three to twelve months duration), upon which most generalizations regarding curability were based; (4) the confused notions as to the meaning of the word "recovery." Even today, the latter term when applied to mental diseases, necessarily lacks the precision that it connotes in most physical diseases. In the middle decades of the nineteenth century, many superintendents of mental hospitals waited only for a temporary return to "sanity" on the part of a patient to discharge him as "cured," and to record him accordingly.

Let us pursue the interesting history of the cult of curability subsequent to the Basil Hall incident. As has been noted, the record of the Hartford Retreat was brought forward by the friends of the insane in many states as a major argument in favor of establishing mental hospitals. To the legislators it proved an impressive point: obviously, great savings would result in building a hospital where the mentally ill could be cured easily and rapidly, instead of placing them in non-curative institutions where they would most likely remain heavy burdens on the public purse for life. Once such a hospital was built, the superintendent was expected to emulate the achievements in high-recovery rates which had been so vociferously brought forward before its founding, or to face severe criticism and perhaps discharge.

Such was the case with the Worcester State Hospital, the first to be erected in the 1830's. It was no accident that the Massachusetts authorities cast their eyes in the direction of the Hartford Retreat in seeking a suitable head for the new institution. Their choice fell first on Dr. Eli Todd, superintendent of the Retreat, who was forced to decline the offer because of ill health. (Dr. Todd died in 1833.) Dr. Samuel B. Woodward, active in the founding and management of the Retreat, was then appointed. This proved to be a fortunate choice. From his ascendancy to the head of the Worcester institution to his retirement in 1846, Dr. Woodward was

generally regarded, both at home and abroad, as the leading American authority on mental diseases.

Statistically, however, the attempt to emulate the Hartford Retreat record of cures got off to a poor start in the first year. Even with some loose handling of statistical data, the institution's first annual report showed less than 50 per cent recoveries of recent cases in relation to admissions.[11] The hospital authorities expressed their apologies for this supposedly low proportion of cures, explaining it on the grounds that many incurables had been transferred from jails and poorhouses to the institution during the first year. In the second year, however, the officers found an ingenious device for stepping up the statistics of recovery to a respectable plane. They adopted the simple but quite effective expedient of calculating the percentage of cures, not on the basis of the total number of patients *admitted* during the year, but of the total *discharged*. Thus, they were able proudly to declare in their annual report to the legislature:

> During the past year 199 patients have been received into the hospital; of these, 55 were old cases, and 64, recent ones. In the same period 115 have been discharged; of these, 49 were old cases and 66 recent ones. Of those discharged, 64 were cured. . . . . The cures amount to 55¾ per cent. . . . .
>
> Of the 49 old cases discharged during the year, 10 have been cured, 16 improved, 14 are stationary, four have died, and one has eloped—the cures amounting to 20½ per cent.
>
> Of the 66 recent cases, 54 have been cured, six improved, two stationary, and four have died—[*the cures amounting to 82½ per cent*].[12] (Emphasis mine—A. D.)

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[11] It is amusing to note, in this respect, that while in the years before the opening of Worcester, its founders had been loudly proclaiming the easy curability of insanity, selecting appropriate statistical support from the aforementioned sources, it was now deemed necessary, in mitigation of the comparatively poor record of the one-year-old institution, to cite figures of a quite contrary character. Before, the statistics on recent cases had been emphasized almost exclusively. In this first report we find the emphasis shifting to the opposite direction. Pointing out that a large proportion of the admissions into the hospital comprised chronic cases, the report stated: "Our hopes, in cases like these, can never be sanguine. But a small percentage of old cases are cured, in any of the best regulated Asylums in this country and in Europe. In the far-famed Retreat in Hartford . . . . only 14 per cent of the old cases are reported to have been cured. In the Glasgow Lunatic Hospital, 13 per cent; in the York Asylum, 12 per cent, etc."

[12] *Second Annual Report of the State Lunatic Asylum at Worcester*, 1834, p. 5-6.

This method of computing the percentage of cures on the basis of discharges instead of admissions naturally resulted in figures bound to impress. Average cures amounting to more than 55 per cent, and cures of recent cases to more than 82 per cent compared very favorably even with the vaunted Hartford Retreat. They overshadowed by far the more cautiously compiled records of eminent European institutions, and the authorities were not backward in pointing out this element of apparent superiority in their report. Of course, they conveniently neglected to explain the different techniques employed in arriving at these ratios. The observant eye, to be sure, could apprehend the unorthodox tabulating devices of the Worcester Hospital, but to the untrained and casual general reader the proportion of cures claimed were accepted at their face value.

During the next few years, the recovery percentages at Worcester mounted steadily until in 1840, Dr. Woodward announced that the cures in recent cases (in proportion to the total discharged) had reached the awe-inspiring point of 90 per cent.

The belief (based on the reports of cures of recent cases) that insanity was easily curable, if treated early enough, rapidly impressed itself on the public and professional mind, and soon reached the plane of established, immutable dogma. But what of the psychiatric profession as a whole? Did it raise any objections to the spread of this fallacy? On the contrary: except for a very few instances, it not only subscribed wholeheartedly to the current misconceptions, but stimulated and strengthened them as best it could. Let us cite a few representative opinions from the most eminent medical superintendents of the day as an indication of the lengths which the delusion reached. As early as 1835, Dr. Woodward made this categorical statement, which was widely quoted for many years after: "In recent cases of insanity, under judicious treatment, as large a proportion of recoveries will take place as from any other acute disease of equal severity."[13] Two years later Dr.

[13] Eight years later, Dr. Woodward's optimism regarding curability progressed sufficiently to permit him to go even beyond this comparison. In his annual report for the Worcester Hospital in 1843, he states: "I think it not too much to assume that insanity, unless connected with such complications as epilepsy, paralysis, or general prostration of health, is *more* curable than any other disease of equal severity; more likely to be cured than intermittent fever, pneumonia, or rheumatism." (Emphasis mine—A. D.)

Amariah Brigham, who soon after became the first superintendent of the Utica State Asylum, declared in an article appearing in the *North American Review:* "It is gratifying to be able to state that no fact relating to insanity appears better established than the general certainty of curing it in its early stage." Quite as optimistic was the declaration of Dr. Luther V. Bell, head of the McLean Asylum in Massachusetts, who, in his annual report for 1840, averred: "The records of this Asylum justify the declaration that *all cases, certainly recent*—that is, whose origin does not, either directly or obscurely, run back more than a year—recover under a fair trial. This is the general law; the occasional instances to the contrary are the exception." Even the famous superintendent of the Pennsylvania Hospital for the Insane, Dr. Thomas S. Kirkbride, fell victim to the infectious cult of curability. In his report for 1842 we find this grave assertion: "The general proposition that truly recent cases of insanity are commonly very curable, and that chronic ones are only occasionally so, may be considered as fully established." Dr. Pliny Earle, who later did more to explode the curability fallacy than any other individual, wrote in his report for 1845 as attending physician of the Bloomingdale Asylum in New York: "When the insane are placed under proper curative treatment in the early stages of the disease, from 75 to 90 per cent recover." [14]

The significance of these quotations is enhanced when we realize that all those we have cited were among the founders of The American Psychiatric Association, organized in 1844, that they were all prominent in their profession, and that their views were substantially endorsed by all of their contemporaries in America. In some of the general declarations of easy curability advanced by medical superintendents, cautious qualifications appeared, but even in such instances the qualifying words were lost on the general reader whose attention was usually focussed on the high-percentage recovery figures to the exclusion of all else.

[14] In his first report as medical head of the Bloomingdale Asylum (1844) Dr. Earle had written: "It appears to be satisfactorily proved that, of cases in which there is no eccentricity or constitutional weakness of intellect, and when the proper remedial measures are adopted in the early stages of the disorder, no less than eighty to every hundred are cured. There are but few diseases from which so large a percentage of the persons attacked are restored."

Meanwhile, institutions for the insane continued to engage in a fierce, if concealed, rivalry with one another in setting up impressive recovery tables. Higher and higher rose the claims of cures reaching fantastic heights, even dwarfing the claims of Willis and Burrows and the record of 1827 which had suddenly catapulted the Hartford Retreat into world prominence. Well into the 90's soared the percentages of cures claimed in recent cases. It only waited for some enterprising superintendent to ring the bell at 100 per cent. In his 1842 report as head of the Eastern Asylum for the Insane at Williamsburg, Virginia, young Dr. John M. Galt made a conditional claim to this ultimate result. Of 13 cases of recent insanity that had been admitted into the institution during the preceding year, he declared, twelve, or 92.3 per cent of the total, had been discharged cured. The thirteenth patient had inconsiderately died, apparently causing the hospital to fall just one short of the perfect goal. But with the characteristic intrepidity of the time, our youthful superintendent was resolved not to let this factor stand as a serious obstacle in the way of the perfect score. With disarming naïveté, he dismissed the demise in this fashion: "If we deduct this case from those under treatment, the recoveries will amount to 100 per cent!"[15] Carried away by the achievement thus obtained, he concluded: "From such facts as the above, I am led to believe that there is no insane institution, either on the Continent of Europe, in Great Britain, or in America, in which such success is met with as in our own."

However, this remained a conditional record. The maximum, unconditional claim was yet to be pronounced. It was not long in forthcoming. In the very next year, 1843, Dr. William M. Awl of the Ohio State Lunatic Hospital at Columbus announced the attainment of the *ne plus ultra* in a laconic finale to his statistical report: "Per cent of recoveries on all recent cases discharged the present year, 100." Note the fact that here, as in the case of Woodward of Worcester, the ratios are based on *discharged* cases, and

[15] Dr. Galt was by no means lacking in precedent for making this deduction from his computations. It was not unusual for institutional heads to put aside the dead in figuring the proportions of cures in order to give their statistics a more impressive dressing. Carried to its ultimate conclusion, this practice would permit institutions listing one recovery and 99 deaths out of 100 recent cases to claim 100 per cent cure.

not on admissions. Howbeit, the record advanced by Dr. Awl, the distinguished head of the Ohio institution, gained him the sobriquet, among contemporary wits, of " Dr. Cure-Awl."

By this time, however, voices of protest were beginning to be raised against the excesses of the cult of curability. These voices were feeble and cautious at first, but gained strength and numbers with the passage of time. Dr. Isaac Ray, in his first report as superintendent of the Maine Insane Asylum in 1841, voiced his dissatisfaction with the misleading and wholly arbitrary practice of separating the mentally ill into " recent " and " old " cases, a practice which formed one of the main pillars in the structure of mathematical curability. " I have adopted this classification," he said, " in deference to the practice now somewhat common in New England hospitals; but I must be allowed to express my conviction that the distinction is without any precise, well-marked difference, and had better be abandoned." In his next report he added: " Nothing can be made more deceptive than statistics; and I have yet to learn that those of insanity form any exception to the general rule." So strong, however, was the current of the curability mania that Dr. Ray felt constrained to swim along with the tide as far as his statistical reports were concerned, employing under protest the methods of his contemporaries in achieving high recovery rates. About 1850, a number of critics of the current statistical fallacies arose among asylum superintendents. Prominent among these early protestants were Dr. James Bates, successor of Ray at the Maine Insane Asylum, Dr. S. Hanbury Smith of the State Asylum at Columbus, Ohio, and Dr. Andrew McFarland of the New Hampshire Asylum at Concord. Their criticisms were directed mainly at: (1) the arbitrary separation of " recent " and " chronic " cases, a convenient device for gaining statistical advantages; (2) the method of calculating recovery ratios on the basis of discharged cases; and (3) the loose, ambiguous use of the terms " cured " and " recovered."

In 1845, Dr. John Thurnam, resident medical superintendent of the York Retreat in England, published a book entitled, *Observations and Essays on Statistics of Insanity,* wherein he came to rather gloomy conclusions regarding the curability of mental diseases. Basing his remarks on a study of case histories of 244

persons treated at the York Retreat, he formulated this generalization:

> In round numbers, of ten persons attacked by insanity, five recover and five die, sooner or later, during the attack. Of the five who recover, not more than two remain well during the rest of their lives; the other three sustain subsequent attacks, during which at least two of them will die.

This conclusion, based on painstaking statistical research, had a chastening effect on institutional "enumeration" not only in Great Britain (where the tendency to exaggerate recovery rates also prevailed, though to a lesser extent), but in the United States as well. Superintendents began to tone down curability statistics, or to drop them from their reports entirely. (Dr. Kirkbride of the Pennsylvania Hospital was among the first to adopt the latter course.) The cult of curability, which had reached its peak of optimism between 1840 and 1850, experienced a gradual deflating process. The pendulum began to swing back to the opposite extreme. So far backward did it swing, in fact, that Dr. Luther Bell, whose confident belief in 90 per cent curability we have quoted, expressed this radically different point-of-view in 1857: "I have come to the conclusion that when a man once becomes insane, he is about used up for this world."

The curability cult lingered on for many years, however. To Dr. Pliny Earle, who was one of its early devotees, must be given the credit for dealing the fallacy its death-blow. Possessing an inquisitive and thoroughgoing turn of mind, Dr. Earle began to question the validity of contemporary statistics on curability. His doubts deepened with time, and finally led him to enter upon a comprehensive study of the matter. He spent years of intensive research, going far beyond the limits of Dr. Thurnam's work. The complete records of many American institutions for the insane were carefully combed by the indefatigable Dr. Earle. The first results of his many years of investigation were published in the annual report of 1875 for the Northampton State Hospital in Massachusetts, of which Dr. Earle was then superintendent. Additional installments appeared in later reports, and were finally gathered together in a book, *The Curability of Insanity,* published in 1887.[16]

[16] The findings of Dr. Earle on statistics of insanity may be found in condensed form in a paper read by him before the National Conference of Charities

The revelations contained in these studies had a profound and healthy influence on the subsequent course of statistical reporting in American mental hospitals.

A major factor in the apparent high ratio of cures in institutions for the insane, Dr. Earle found, lay in the abuse of the word "recovered," and in the failure to distinguish properly between the words "case," "patient," and "person." In very many instances, the same person was discharged "recovered" from an institution a number of times within a few years, or even in the space of one year. In the statistical reports of the time, the reader was given no intimation that the same *person* might appear as several "recovered *cases*" in the record. Thus, Dr. Earle relates, one woman was discharged recovered six times at the Bloomingdale Asylum, and another seven times at the Worcester Hospital, each within the space of one year. In neither instance was any hint given that the number of *cases* which swelled the percentage of recovery figures was not identical with the number of *persons* treated. Incidentally, the woman who contributed six "recoveries" to the record of Bloomingdale in one year, was reported cured no less than 46 *times* before her death—which took place in an insane asylum. Dr. Earle also discovered that the obliging woman who recovered seven times in one year for the greater glory of Worcester had been discharged as cured nine times in the two preceding years, making 16 recoveries in three years.

The records of other institutions were replete with similar cases. In five asylums the records of which were examined by Dr. Earle, 40 persons were reported cured no less than 484 times, averaging more than 12 recoveries each. Three women alone were admitted as patients into mental hospitals an aggregate of 118 times, and were discharged recovered, and placed in the records as such, 102 times. Two of these finally died insane. In one institution, seven women were reported recovered a total of 92 times. Naturally, the uninitiated reader took it for granted that the number of cases was identical with the number of persons admitted, and since the statistics were very seldom accompanied by explanations pointing out this vital difference, he readily fell victim to the fallacy. No wonder

and Correction in 1879. (*Proceedings of the Sixth Annual Conference*, 1879, p. 42-50), and in his article on "Curability" in the *Dictionary of Psychological Medicine*, edited by D. Hack Tuke. (London, 1892, v. 1, p. 321-24).

that the English medical superintendent, Sir James Coxe, in discussing institutional statistics on the insane wrote of "that spirit of inflation which is a too prevalent characteristic of writers of this branch of medicine." No wonder that the American, Dr. James Bates, drily noted that "they [statistical reports of cures] were received with wondrous admiration by that portion of the public who are better pleased with marvellous fiction than with homely truth."

But the myth of easy curability lasted long and died hard. Its tenacious survival is indicated by the fact that, when Dr. Earle began publishing his epochal studies on recovery statistics in 1875, most establishments for the mentally ill in America still subscribed to the hypothesis that insanity was easily curable. His findings were bitterly attacked (with more emotion than reason) by many of his contemporaries, including some leading medical superintendents. The wealth of evidence he brought forward, based on years of exhaustive research, created an impregnable wall of proof. But this fact did not save Dr. Earle from the calumnies of men who found offense in conclusions that had the effect of exploding a convenient, comfortable and long-standing hypothesis, erroneous though it be.

Once the cult of curability was dealt its death-blow, however, a period of reaction set in, the unfortunate effects of which are still observable to-day. Disillusioned, the public cast off the cloak of false optimism that had been woven with the warp of error and the woof of short-sighted opportunism. Instead, popular opinion respecting the curability of insanity became mantled in extreme pessimism. And long after a real basis for optimism was established with the firm materials of scientific knowledge, the ancient saying, temporarily discarded during the curability craze, once more echoed a dominant attitude: "Once insane, always insane!"

ANTIRETENTIONAL THERAPY IN CONDITIONS ASCRIBED TO INTRACRANIAL LIQUID ACCUMULATION.*

By EUGENE FÖLDES, M. D., New York City.

I should like you to imagine a hospital ward where the beds are occupied exclusively by patients suffering from convulsions of various origins, such as convulsions associated with uremia, eclampsia of pregnancy, eclampsia of infancy and epilepsy. Let us assume the simultaneous occurrence of paroxysms in all the patients. Led into this imaginary ward at this time and confronted by the dramatic occurrences manifested by patients afflicted by such convulsions, an unbiased non-medical observer would undoubtedly arrive at the conclusion that all these patients were suffering from an identical ailment. Stopping before the bed of a convulsive uremic patient, and being informed by the internist that there is little doubt that in such cases the convulsions are due to intracranial accumulation of fluid irritating cortical motor centers, the medically untrained observer would be unsafe in concluding that the same factor might be instrumental in producing the attacks in the other patients as well. The obstetrician, for example, would quickly enlighten him as to the erroneousness of such an assumption. Toxic substances accumulated in the body of the pregnant woman would be pointed out as responsible for the convulsions in eclampsia of pregnancy and the dissimilarity of the condition called toxemia of pregnancy and of the other convulsive states emphasized, notwithstanding the apparent identity of the convulsions. The pediatrician would similarly deny the influence of identical factors in eclampsia of infancy and the other convulsive states. Impressed by the disturbed mineral metabolism so frequently found in eclampsia of infancy, he would point out the significance of the low calcium content of the blood in producing muscular spasms and would suggest the term of spasmophilia to designate this condition. As to epilepsy, " idiopathic " would be the term offered by the neurologist, thus widely separating epileptic convulsions from the convulsions

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

of uremic and eclamptic patients, and he would perhaps hint at vasomotor disturbances as the underlying cause of the epileptic attacks.

This was the state of affairs not so long ago and is generally so perhaps even today. Specialists in medicine, obstetrics, pediatrics and neurology moving within the circle of their respective fields, built up independent theories without giving consideration to the ideas evolved in other special fields, and emphasized the differences rather than the similarities there existing. And although occasionally the theory has emerged that in one or the other of the conditions enumerated, the mechanism leading to convulsions is made up of an intracranial accumulation of liquids and a consequent irritation of the cortex, such theories were soon to be discarded and forgotten. There seemed to be good reasons for rejecting the assumption that an identical mechanism, that is to say an intracranial liquid accumulation, plays a part in the development of all of the convulsive states. It seemed comprehensible that intracranial liquid accumulations should occur in uremia resulting from glomerulonephritis or nephrosis, in which there are visible retentions of liquids in the form of edemas throughout the body, and in which such retentions can be explained by the presence of insufficient kidney function. But there seemed to be no good reason to assume general liquid retention throughout the body, and thus also its local accumulation within the cranium, when in eclampsia of infancy and epilepsy visible edemas were absent and no kidney disease or circulatory failure were found to account for water and mineral retention. Even when visible retentions were present such as occur in many cases of eclampsia of pregnancy, or the presence of invisible retentions was proved by measurements of the intake and output of liquids and by measurements of the body weight, as in cases of epilepsy, these findings were brushed aside as coincidental occurrences having no significance in the pathogenesis of the attacks. And yet, for the past few years, evidence piles up indicating not only the pathogenic significance of intracranial liquid accumulation in all convulsive states, but also indicating the presence of generalized retentions throughout the body, the same as in convulsive uremia, although to a lesser extent.

To have proved the pathogenic significance of local intracranial liquid accumulation in the convulsive states and to have added to

our knowledge of its genesis is the great merit of Temple Fay and his associates. For my part, I have endeavored to present the local intracranial liquid retention as a part of generalized retentions occurring throughout the body and I attempted to analyze the factors which may lead to such retentions in the absence of kidney disease or generalized circulatory disturbances. I have also attempted to show that intracranial liquid accumulation in association with general retentions throughout the organism plays a significant rôle in migraine. I wish to direct your attention to the fact that headaches, vomiting and visual disturbances, often precede uremic and eclamptic convulsions, frequently follow epileptic attacks or occur instead of such convulsions, as so called equivalents. The consideration that the headaches, etc., associated with convulsions are due apparently to the same pathogenic factors as the convulsions themselves, that is to say, to intracranial liquid accumulation, led to the investigation whether or not the symptom-complex of migraine, which also consists of headaches, vomiting, visual disturbances, etc., is similarly due to intracranial liquid accumulation. It seemed to me that this question could be answered in the affirmative, and on account of these apparent pathogenic similarities, migraine will be included in the discussion to follow.

Turning now our attention from the problems of pathogenesis to those of treatment, it seems obvious that if the significance of the rôle of liquid retention in the pathogenesis of the convulsive states and migraine is admitted, a rational therapy should consist of the prevention of accumulation of liquid in the organism and the elimination of liquid previously accumulated. This is the theoretic basis on which we should attempt to build the therapy. If, then, with this in mind we make a survey of the possible means of ridding the body of excess fluid and preventing its subsequent recurrence, or in other words should we attempt to establish an antiretentional treatment of the convulsive states and migraine, the attention is first drawn to the utilization of diuretics. Yet a serious obstacle to the utilization of diuretics is their unreliability, as there is not one which is effective in all cases nor at all times in the same case. The toxicity of certain diuretics, such as mercury preparations and the undesirable by-effects of others, such as that of caffein on sleep or of theobromine on digestion should also be mentioned. There is, however, one diuretically active substance, the administration of which

is apparently free of harmful by-effects and, if proven to be reliable, deserving of further trial in cases in which dietary therapy meets with difficulties. I refer to the administration of liver extract, used in pernicious anemia, the diuretic action of which is well known. In one case of epilepsy in which I gave it intramuscularly in intervals of two weeks with a small additional oral dose of iron, grand mal attacks which previously developed once in three to four weeks did not recur, although the petit mals persisted and became more frequent. Also in cases of migraine, with oral administration of liver extract I noted diminution in the frequency or severity of the attacks, in most instances. It should be emphasized that this effect was observed regardless of whether anemia was present or absent. Consequently the contention that the mechanism of this pharmacological action consists of the effect of liver extract on the morphological composition of the blood cannot be maintained. In general, however, the results obtained by the employment of liver extract are less favorable than those obtained by dietetic therapy, so that a trial with the former should be resorted to only in cases in which the latter is not feasible.

In contradistinction to such objections as may be raised to a therapy by diuretics different conditions are met with if the attention is directed to a consideration of the nutrition as a possible method of a therapy of the convulsive states and migraine. Not only is a well chosen diet obviously non-toxic and without any improper by-effects, but it can also be expected to rid the body of excess liquid and prevent its subsequent recurrence. The expectation that it might thus be possible to adapt the nutrition to the therapy is justified if consideration is given to the important observations which show that certain factors in the diet have a very effective diuretic and others a definite retentional influence on the organism. Accepting these observations as a basis upon which the therapy is to be built, the diet evidently should consist of a liberal quantity of such food substances as have a diuretic action, with a restriction of those food substances which produce retentions.

Upon this principle I have developed a diet which I call *antiretentional* and which I describe in detail in a work published in 1933. The most important features of the antiretentional diet are as follows:

It is rich in proteins, aiming at the utilization of their diuretic action. The amount of proteins administered is from approximately 1.5 to 1.8 gm. per kilogram ideal weight. The proteins administered should consist to a large extent of meats and particularly in the initial stages of the therapy, of substances rich in nucleoproteids, such as liver, kidney, sweetbread, sardines, etc. In the antiretentional diet special consideration must be given to the nucleoproteids on account of the action of one of their constituents, the purin substances, which are chemically related to the diuretics of the caffein group.

Among the restrictions in the diet, one of the most important is that which refers to the carbohydrates. Restriction of the carbohydrate intake is necessary in the antiretentional diet on account of the retention of liquid which follows the ingestion of carbohydrates in large quantities. I found it advisable to begin treatment with the administration of approximately 2.5 gm. of carbohydrates per kilogram ideal weight, and later gradually to increase this quantity to the level which is necessary to maintain the body weight.

Restriction of the intake of fats is also necessary in the dietary therapy of the convulsive states and migraine, because the ingestion of fats is followed by a retention of liquid in the same manner as after the ingestion of large amounts of carbohydrates. It has been my procedure to fix the amount of fats at from forty to fifty gm. daily, irrespective of the body weight. Since the administration of both carbohydrates and fats seems to be followed by liquid retention, antiretentional results can also be expected from a diet containing additional fats if this is compensated for by a restriction of the carbohydrate intake below the amount previously stated. The effect of the ketogenic diet with its low carbohydrate, high fat content can thus be explained by assuming an effect on the water and mineral metabolism rather than on the hydrogen ion concentration of the blood. Yet a low fat diet, which is only moderately restricted in carbohydrates, more closely resembles the normal mixed diet, and for this reason this combination as incorporated in the antiretentional therapy is generally more acceptable and followed by patients with greater fidelity, than a low carbohydrate, high fat nutrition as suggested in the ketogenic diet.

With reference to the intake of sodium chloride, on first thought a severe restriction would seem necessary, as it is in edematous

conditions for the purpose of reducing liquid retention. Nevertheless in the antiretentional diet it seemed to be sufficient to instruct the patients to use salt in their food with moderation and to avoid distinctly salty food, such as soups, herring, etc. While the effectiveness of this therapy—without the complete elimination of salt in the diet—was demonstrated by the results obtained, certain cases which showed insufficient improvement made it necessary to attempt a further improvement of the diet. Seeking a solution to this problem, several patients who did not respond with complete satisfaction to the treatment, were advised to abstain from the use of salt in cooking their meat and vegetables, and told to use it in specific amounts on this food after it was prepared. For this purpose from one to two gm. were allowed daily. The patients were not required to eat special bread prepared without salt and were occasionally permitted to have cheese, which also contains some salt. The results, however, were not uniform, so that additional observations are obviously necessary in this direction. At the present time it seems to be advisable to make an attempt with the salt-poorer form of the antiretentional therapy in those cases in which the response to the moderately salt-poor form of the diet is not quite satisfactory.

A significant measure in the antiretentional management is the restriction of the liquid intake. The amount I usually administer varies between one and one and a half liters including the fluid content of the fruit.

As to the vitamins, obviously all of these must be considered in any nutritional system, planned for prolonged usage, in order to avoid the various forms of avitaminosis or hypovitaminosis. Excessive administration of vitamins must also be avoided, however, so as to prevent the harmful effects of hypervitaminosis.

Finally consideration should be given to the caloric requirements. A high calory diet is necessarily either a high carbohydrate or a high fat diet or both, and consequently leads to liquid retention. The diet lowest in calories, that is to say a starvation diet, is followed by elimination of retained liquid in the initial stages. Accordingly the diet used in the convulsive states and migraine should be a low calory diet, particularly in the beginning. In the later stages of the antiretentional dietary therapy, the caloric intake should be gradually increased, because a chronic undernutrition is followed by retention

of liquid, similarly as is the intake of a high calory diet. One should be guided by the observation of the body weight, increasing the caloric intake to the point at which the weight of the patient is stabilized somewhat below or above the ideal figure. For this purpose carbohydrates may be used in preference to other food substances, keeping the protein and fat content of the diet unchanged. Carbohydrates are preferred to fats because of the effect of the former in filling up the glycogen depots of the liver and the consequent favorable effects on the general health.

In addition to the diet, phenobarbital was administered in all cases of epilepsy and in such cases of migraine as showed symptoms of nervous irritability or insomnia. In the choice of phenobarbital as a sedative consideration was given to its stabilizing effects on the water and mineral metabolism, it having been shown that under certain circumstances it may prevent retention of liquids.

The argument was advanced that if favorable responses were obtained by the antiretentional therapy, they might have been due to the well known effects of phenobarbital rather than to those of the diet. Yet this diet either by itself or together with such small doses of phenobarbital as one-fourth of a grain, four times a day, was effective in cases in which much larger doses of phenobarbital without the diet were not followed by noticeable improvement.

Another valuable adjuvant to the antiretentional diet is the administration of small doses of atropine sulphate. The main reason for including atropine in the antiretentional therapy was its dilating effect on the smallest blood vessels of the skin. It was expected that through the better circulation thus produced chlorides and other mineral substances might be carried away from the skin and offered to the kidneys for elimination to a greater extent and hence the retention of mineral substances and the consequent retention of water lessened. This expectation was based on the fact that of the chlorides introduced into the body the largest percentage is stored in the skin. The administration of atropine was put to a test in cases of migraine only, thus far; but in these, its addition to the diet, either in itself or in association with phenobarbital, accomplished additional improvement in patients in whom the response to the therapy was not previously complete.

Aside from the diet and medication, everything in the life of a patient suffering from one or the other of the convulsive states or

from migraine should be regulated from the standpoint of avoiding the retention of liquids. Thus, in the treatment of the frequently encountered constipation, enemas, which may lead to absorption of some of the fluid and subsequently to its retention in the tissues are to be avoided, and in the treatment of constipation some of the mechanically active agencies, such as the agar-agar or mineral oil preparations, should be administered. Omission of meals, strenuous physical work, prolonged exposure to sunshine, may also be followed by undesired influences on the water and mineral metabolism and are consequently to be controlled. And generally speaking, all aspects of the everyday life of the patient should be subordinated to the principle of preventing liquid retention. If consideration is given to all of these factors, we then have an antiretentional *therapy* instead of a mere antiretentional *diet,* with an organization of every phase of the life of the patient on a single therapeutic principle.

When a brief review is made of the results obtained by the antiretentional therapy in the convulsive states and in migraine, the eclampsias, both of pregnancy and of infancy will be omitted because no such cases came under my observation. Yet mention should be made of the fact that on an empirical basis, a diet to be employed in eclampsia of infancy has been developed by Czerny, the German pediatrician, with remarkable intuition, which diet is identical with the antiretentional diet in almost every detail, and the effectiveness of which has been proven through the years.

In epilepsy and migraine, however, the administration of the antiretentional therapy was put to a test and this was followed by gratifying results. In epilepsy a response was manifested in all cases. It consisted either of the complete disappearance of all attacks or in a decrease in the frequency and severity of the paroxysms, so that sometimes the grand mal attacks did not recur and only the petit mal attacks persisted. The improvement following antiretentional therapy in migraine was shown in the disappearance of all symptoms in a number of cases. In others there was a definite decrease, either in the severity or in the frequency of the attacks, or in both. The improvement followed the antiretentional therapy with such rapidity and regularity that it is comparable with that obtained with specific forms of therapy. Consequently, it will perhaps be possible to use the antiretentional therapy as a so-called

therapeutic test in the differential diagnosis of migraine. In one case which resembled migraine in its manifestations but which did not respond to the therapy, further investigations disclosed that, in fact, the headaches were due to nasal polyps.

Aside from the significance of these therapeutic results in practice, they seem to be noteworthy from the theoretic point of view as well, inasmuch as they might permit a conclusion to be drawn as to the soundness of the basis on which the therapy was built. In other words, the practical results obtained by a therapy designed to rid the body of retained liquids and to prevent their subsequent retention might be considered an evidence of the important rôle played by intracranial liquid accumulation in the pathogenesis of epilepsy and migraine.

Dietetic measures other than antiretentional have been suggested and employed with considerable success in the therapy of convulsive states. I refer particularly to the ketogenic diet offered by Peterman and the dehydration therapy inaugurated by Temple Fay. While observations confirming the results obtained by the antiretentional therapy or its modifications were reported by Grafe, Wagner-Jauregg, Hartenberg and others, it would be premature at this time to discuss its merits as compared to those of the dehydration treatment and the ketogenic diet. I wish to emphasize the fact, however, that (1) the antiretentional diet comes closest to the natural mixed diet of most civilized peoples, (2) that in its development an attempt was made to satisfy all the nutritional needs of the human organism as disclosed by past and contemporary studies, and finally, (3) that an effort was made to harness the forces of all the known dietetic and other factors for the purpose of eliminating intracranial liquid retentions and thus preventing attacks of convulsions and migraine. Should therefore future investigations indicate that the results of this therapy are at least as advantageous as those obtained from the ketogenic diet and dehydration treatment, what I have pointed out would then seem to be in favor of the antiretentional therapy.

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PSYCHIC STRESSES AND CULTURE PATTERNS.

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A thorough understanding of the incidence, etiology, symptomatology and forms of certain classes of mental disorder requires a serious attempt to evaluate the influence of non-organic factors, the relevance of which is thrown into sharp relief once the data of history and ethnology are taken into account, in addition to clinical observations. When a *human* perspective is substituted for the more narrowly circumscribed outlook that implicitly identifies human behavior with the *characteristic* behavior of man in contemporary western civilization, it becomes evident that mental disorders exhibit variations which cannot altogether be attributed to organic factors alone. Fenichel,[1] for instance, refers to " the demands of present day civilization with its contemporary manifestations which we find in the neurotic patients of today who come to seek treatment. So far as we know, other civilizations had produced neuroses, but these differed from the neuroses of today, because these civilizations demanded different instinctual privations. The taboo which we now designate ' compulsion neurosis ' is normal in civilizations other than ours ; a ' devil neurosis of the seventeenth century,' once studied by Freud could not be fitted into our present diagnostic scheme. Indeed we are able to observe how the clinical pictures presented by the neuroses of today are changing, obviously parallel with changes in society and morality. It is the morality which prevails at the time which is directed against instinct in individuals, and morality is a relative power the nature of which depends on the structure of society. It is at this point that the psychologist must admit his inadequacy and agree that the problem of the etiology of neuroses is not a purely individual medical problem and that it needs supplementary sociological considerations."

To the anthropologist, at least, it is a commonplace that, despite the phylogenetic unity of man and the specific identity of contemporary races of our kind, the acquired behavior patterns that

[1] Fenichel, O.: Outline of clinical psychoanalysis, pp. 3-4, 1934.

characterize the human species show an amazing diversity of forms. Transmitted from generation to generation in the form of the folkways, mores, customs, beliefs and techniques of particular groups of mankind, they comprise the cultural as opposed to the organic, heritage of Man. Broadly viewed, the extremely varied character of human culture patterns, when considered in connection with the fundamental organic unity of mankind, presents a phenomenon unique among living things. Man's behavior is everywhere canalized, restricted and defined by customary procedures that are imposed upon each new generation of human individuals in accordance with the demands of different culture patterns. Verbal communication is patterned by conventional linguistic forms. Beliefs, among other things, offer a standardized interpretation of the meaning of physical phenomena of the outer world, often a reification of mythological beings. Interpersonal relations are guided by the traditional forms of the social and economic order. Even perception itself and mental imagery is not free from the influence of culture patterns, nor are motor habits, gestures, the expression of the emotions and the motivations of the individual.

It seems likely then, that as a result of differences in the social pressures imposed by varying cultural configurations, qualitative differences in cultural values bear *some* relation to the incidence and character of psychic stresses in different human societies, quite additional to situational and organic factors. We are not yet in a position to elucidate these relations in any precise detail, but the hypothesis is one that poses an important problem for investigation.

So far as the gross incidence of clinically recognized mental disorders is concerned, it has been casually asserted from time to time, that there is an increase in mental disease as a marked symptom of the stress and strain of modern life in western civilization in contrast to a relatively low incidence of such disorders among so-called primitive peoples. In view of the fact, however, that reliable information is not available on the incidence of mental diseases in primitive societies, such a sweeping statement is unwarranted. White [2] queried it a number of years ago, and on the basis of Mead's observations on functional disorders in Samoa, it has more recently been challenged by Winston.[3] Nevertheless, it may very well be that

[2] White, William A.: Outlines of psychiatry, 10th ed., pp. 45-46, 1924.

[3] Winston, Ella: The alleged lack of mental disease among primitive groups. American Anthropologist, Vol. 36, 1934.

the gross incidence of mental disorders will be found to vary in different culture provinces, if sufficiently reliable information is ever obtained upon which to base comparisons.

The consideration of differences in the forms and symptoms of mental disorders in various societies, in the same society at different periods, and in different contemporary classes of the population of a given society, would seem to offer a more tangible approach to possible relations between these disorders and prevalent culture patterns.

There is one intrinsic difficulty, however, which makes the diagnosis of mental disorder in societies other than our own anything but a simple matter. If " normal " behavior, as defined in our culture, is taken as an absolute standard of reference and the behavior of individuals conditioned to the values of another culture are compared with it, then of course it is even possible to speak of " group psychoses and neuroses " as manifested by the individuals of the exotic society. If, however, we acquaint ourselves with the modal behavior of individuals in a series of totally different cultures and develop norms based on such a standard of reference, we discover that there always are individuals deviant from the norm in every society, and some of these exhibit definite pathological symptoms. This procedure offers a genuine parallel to the study of personality deviation in our own society because it takes account of the cultural forces which mould the normal individual in the society. " Cultural anthropology," as Sapir has said, " has the healthiest of all scepticisms about the validity of the concept ' normal behavior.' It cannot deny the useful tyranny of the normal in a given society but it believes the external form of normal adjustment to be an exceedingly elastic thing. . . . .

" It is valuable because it is constantly rediscovering the normal. For the psychiatrist and for the student of personality in general, this is of the greatest importance, for personalities are not conditioned by a generalized process of adjustment to the ' normal ' but by the necessity of adjusting to the greatest possible variety of idea and action patterns according to the accidents of birth and biography." [4]

[4] Sapir, Edward: Cultural anthropology and psychiatry. Journal of Abnormal and Social Psychology, Vol. XXVII, No. 3, 1932, p. 235. *Cf.* Benedict, Ruth: Anthropology and the abnormal. Journal of General Psychology, Vol. X, 1934.

The reification of dream or vision experiences, for example, is not in accord with the culture patterns of contemporary western civilization. Individuals who interpret dreams in this manner may therefore be characterized as aberrant. But among the Saulteaux Indians with whom I have been in personal contact, as well as among many other native Americans, the deviant individual would be one to whom certain dream experiences were *not* believed to bring one into direct contact with spiritual entities of the cosmos. Without a knowledge of the cultural background of an individual the psychological significance of dream reification in terms of "normality" or "abnormality" has little or no meaning.

Thus, while the beliefs of an individual are always relevant to an understanding of his behavior, the *source* of these beliefs is of great importance. It is chiefly in reference to the beliefs regarding the nature of the external world and the normality of interpersonal relationships that are engendered by certain traditions in our culture that the belief systems of primitive peoples appear to be "flights from reality," comparable with the delusional systems of psychotic individuals in our society. But can the concept of "reality" itself be regarded as having any absolute content? Just as the psychotic person acts *as if* his delusional system constituted reality (as it truly does for him), so the individuals inculcated with the belief systems of primitive societies act *as if* such beliefs were true. But whereas the psychotic reifies a specific personal version of reality, the normal individual of a primitive society reifies the generic beliefs typical of the cultural heritage to which he has been subjected. Thus, while there are many *analogies* between the delusional systems of psychotics and the beliefs of some of the so-called primitive peoples, the *sources* of these beliefs are very decidedly to be distinguished. The reality of the psychotic is a unique, subjective and highly personal configuration, the meaning and psychological significance of which is often unintelligible or even incommunicable to his fellows. The reality, on the other hand, that is *culturally* defined, embodying meanings and values which are shared *in common* by whole series of individuals, has been communicated to the person along with many other ideas and behavior patterns as part of a unified cultural heritage The delusional system of an individual of a primitive society must be evaluated with reference to the definition

of "reality" characteristic of his culture and not that of some other.

Once reality is intellectually accepted as a relative term the meaning and content of which is to be sought in culturally defined terms, considerable insight is obtained into the behavior of individuals acculturated to different reality patterns. The paradox seems to be that the deflation of reality in an absolute sense of the term offers a *genuine* realistic approach to problems of both normal and abnormal behavior. Reality for the Bushmen of South Africa is not the equivalent of reality for the Navajo any more than medieval cosmology and demonology are accredited realities in western civilization today. And the reality of the psychotic of our culture is not the equivalent of any of these.

Science in our culture aims at an interpretation of celestial, meteorological, terrestrial, biotic and psychological phenomena which is more definitive in an absolute sense than anything ever known before in human history. At the same time, the scientific point of view looks with equanimity upon a changing interpretation of phenomena. It is authoritative without being finalistic. Hypotheses are tested and retested and new interpretations emerge. Yet even in western culture, scientifically defined reality has not completely displaced some aspects, at least, of the older and more tenacious traditional versions of reality deeply rooted in the ideology and mores of our society. The recurrent "conflict between religion and science" is symptomatic of this lag. Among individuals of the educated classes, the mental habit of viewing the external objects of what we call the natural world in terms of established scientific knowledge about them, has so completely divorced our minds from other possible attitudes that we are even apt to attribute our point of view to innate intelligence or common sense, instead of to a traditionally acquired mode of thought. Hence the charge of stupidity, childishness or naïveté, sometime flung at primitive man, is a boomerang that may some day be found at our own feet. Whatever the ultimate status of scientifically defined reality may prove to be, the psychological fact remains that just as we act in accordance with this pattern of reality, or its derivatives, so primitive man acts with respect to *his* concepts of reality.[5] If we seek to under-

[5] For which the individuals who entertain these concepts find plentiful support in their actual experience. See Hallowell: Some empirical aspects of Northern Saulteaux religion. American Anthropologist, Vol. 36, 1934.

stand the determinants of human behavior, this must be recognized as one of the psychological imponderables the specific weight of which can hardly be challenged. Moreover, its specific influence in concrete forms of individual behavior can readily be observed, once we establish the proper frame of reference.

When we recognize that the traditional culture patterns of any specific group of human beings provides a frame of reference that not only defines the phenomenal universe but delimits the ambit of interpersonal relations, we see that some psychic stresses which result in "abnormal" behavior of the individual are to be viewed as resultants of inner psychic forces and social pressures productive of aberrant, instead of modal, behavior. The differential factors involved in such cases are, of course, the crux of the matter. Before these factors are to be envisaged, however, one must consider the correlative, if not primary, question as to the relation between specific culture patterns and the *modal* forms of personality structure and character traits which these seem to favor. Certainly, quite aside from mental disorder, character traits inculcated by one culture may seem deviant or abnormal to persons of another culture, a fact usually thrown into relief when even individuals of different cultures are brought into more or less intimate contact.

Ever since the westward movement of Ojibwa speaking peoples into Manitoba in the 18th Century, one of the names by which they have been known is Bungi. Etymologically, this name seems to have been derived from a native term meaning *a little of something.* The Indians were always asking the whites for a little of this and a little of that; pangi tobacco, pangi tea, pangi flour, etc. In short, from the point of view of the white man, they were persistent and annoying beggars. If we were to render the name by which the Indians became known into an English metaphor, beggar would best convey its meaning. To the Whites, the outstanding character trait of the Indian was begging. And I have often heard them reviled for this same characteristic today. In my opinion, the relation of this trait to the cultural background of the Indians is quite clear. It is simply the obverse side of the positive emphasis laid in their native culture upon *giving.* Food, articles of clothing, pipes, and other items circulate freely among those who need them. If children are given food or candy, for instance, they will share it at once with their playmates. Among adults, those who have anything

always share what they have with the "have nots." It is not surprising that the Indians should have carried over their culturally determined habits in their social intercourse with traders, missionaries, and settlers. How could they have done otherwise, particularly in view of the fact that they found themselves in the "have not" class with respect to so many novelties that the white man possessed. So to the white man, with quite different institutional patterns of distributing commodities, and hence a different evaluation of the character trait exhibited by the Saulteaux, they became Bungi—Beggars.

Benedict,[6] considering cultures as integrated wholes, has shown how they operate with gross selectivity in respect to the encouragement of certain human temperaments and psychological trends, and the consequent discouragement of others.[7] All cultures, indeed, because of their very emphasis on characteristic sets of values, must inevitably generate psychic stress in the individuals who from temperament, experience, or by reason of some inner conflict find such values uncongenial. There are societies in which homosexuality has been culturally integrated, others in which it is tolerated, and others in which it is suppressed with vigor. We know cultures in which dissociative psychic states or hysteria have been one qualification for religious leadership [8] or even sainthood; and with the latter, we might contrast societies where there are no culturally approved channels for the expression of such psychic phenomena outside of a mental hospital.

Knowing so little about the genetic processes of cultural conditioning and personal symbolisms, to say nothing of the conflicting inner forces that the psychoanalysts emphasize, we encounter enormous difficulties in elucidating the relationship of psychic stresses to culture patterns in complex and stratified societies where the relationship of individuals to a variety of cultural patterns is so

[6] Benedict, Ruth: Patterns of culture, 1934.

[7] In "The problem of feminine masochism," Psychoanalytic Review, Vol. 22, 1935, Karen Horney discusses the relative weight of anatomico-physiological components as contrasted with cultural factors and concludes that feminine masochism cannot be related to the former alone "but must be considered as importantly conditioned by the culture-complex or social organization in which the particular masochistic woman has developed."

[8] *Cf.* Seligman, Brenda Z.: The part of the unconscious in social heritage. (Essays presented to C. G. Seligman, 1934.)

intricate. I should like to make the point, however, that *pari passu* with the investigation either of generic culture configurations which in one society may permit, or even exploit, what in another may be regarded as pathological manifestations, or of the relation of cultural configurations to the problem of mental disorder in any society, there must also be considered the rôle which specific culture patterns may play in bringing about psychic stresses of a much less spectacular sort.

It seems to me that the elucidation of these less serious forms of psychic stress, especially in the simpler and culturally homogeneous societies, should be of some value in throwing light on the fundamental mechanisms involved in both the genesis and resolution of such states of mind under varying conditions, as well as offering the possibility of testing some of the psychological concepts and interpretations advanced to explain the behavior of individuals habituated to the culture patterns of western civilization.[9]

I shall attempt to demonstrate this by the analysis of some case material that shows how some characteristic culture patterns of the Berens River Saulteaux [10] seem to have functioned in relation to the psychic stresses of certain individuals. For the most part, only minor tensions are involved, although a few of these cases might possibly be considered to verge on clinically recognizable disorders. It would seem that the creation, as well as the resolution, of the psychic stress in these cases is connected with specific culture patterns. It would certainly be difficult to comprehend them except in terms of the particular values and attitudes characteristic of Saulteaux culture. On the other hand, the psychological interpretation in each case is sheer guesswork on my part, for which I crave as much indulgence as seems permissible. I did not make a detailed study of any of these individuals; in fact for the most part, I have depended on hearsay evidence. One of the individuals is dead; another, I never met. The case material suffers accordingly; it

[9] *Cf.* Herkovits, M. J.: Freudian mechanisms in primitive negro psychology. (Essays presented to C. G. Seligman, 1934.)

[10] These Indians represent a typical segment of the contemporary native population of the woodland region of the Province of Manitoba, Canada. The river on which they live flows into Lake Winnipeg at approximately 52° N. Lat. They speak an Ojibwa dialect, and a portion of those living up the river are still un-christianized.

can hardly be considered a contribution towards the solution of the problem I have stated, but it does illustrate one angle of attack which a more systematic, detailed investigation might take. Its value can best be judged if this fact is borne in mind.

I. Institutionalized Confession as a Means of Relieving Psychic Stress.[11]

Back of confession itself lies one facet of the Saulteaux theory of disease. The relief from psychic tension that the confession affords is actually a by-product of the conscious desire on the part of some individual to cure himself or a member of his family of an illness. This follows from the belief held that disease may be the result of some moral transgression such as murder, incest, or deception.

This last mentioned transgression specifically means the offering of professional services under false pretences, that is, without supernatural validation. Specialists in certain methods of curing disease, and in clairvoyance and sorcery, for instance, are only able to pursue these vocations because they have been blessed by certain supernatural entities. Their letters patent were obtained in a dream revelation. To practice any special vocation, such as sucking out disease entities or conjuring *without* supernatural sanction, mediated through dreams, is a form of criminal deception. Sickness is sure to follow. Apparently nervous diseases, no less recalcitrant to Saulteaux pharmacology than to western medicine, are frequently accounted for in this way. One old man, who had a stroke during the summer of 1934, was no sooner stricken than the river began to buzz with gossip to effect that his illness was due to deception. But retribution, in the form of sickness, may fall not only on oneself; the sins of the fathers are sometimes visited upon the children—to how many generations, I do not know. There is even a native term for sickness attributable to the wrongdoing of parents. Confession of the crime is the only possible method of cure in such cases.

Case 1.—*Confession of Deception in the Case of a Man Who Suffered from a Phobia.*—This Indian was a conjurer. Power to exercise this particular

[11] Confession in varying culture contexts is very widespread among the so-called primitive peoples, especially in America and Africa. See the survey by R. Pettazzoni, La Confession des Péchés, Paris, 1931.

vocation requires not a single dream revelation but four of them. In this way conjuring is supernaturally inspired. The details of the conjuring lodge itself, such as the particular kind of trees to be used, and other matters, are all conveyed to the human individual in these dreams. When the lodge is entered by the conjurer it begins at once to tremble and later sways from side to side while the voices of the conjurer's guardian spirits issue from it. These spirits do not enter his body and speak *through* him, but sit on the lodge poles and speak *to* him.[12] They give information about lost articles, the welfare of people at a distance, and so on. It is equivalent to a mediumistic performance in our culture. To those of us not spiritualistically inclined by faith, it can be assumed that the voices are not actually those of spiritual beings and that the conjurer himself makes the structure move, but even at this late date, the actual technique of the manipulation of the tent is in doubt. The contemporary Saulteaux, moreover, while maintaining, one and all, a vital belief in the essentially supernatural character of conjuring, admit cases of imposture. It was in this connection that I was told about the case of William Goosehead. A few years ago he could not go into the woods alone, not even for 200 yards. One can readily comprehend how abnormal this is for a man brought up in the Canadian wilderness. Finally, Goosehead confessed that he had been shaking the conjuring tent illegitimately. He had been deceiving his public. A short time after this he is said to have completely recovered from his phobia. I do not know whether there was any real connection between his confession and his recovery, but it is apparent on the face of things, that he must have labored under a considerable sense of guilt, else he would not have confessed. From the native viewpoint, confession was a possible remedy and it appears to have worked.

But if tent shaking is all hocus pocus, why should this man have felt any sense of guilt about doing what other conjurers did? I was told, for instance, that he admitted shaking the lodge with his own hands. Still, I do not believe that this is the core of the matter. I would assume that, in this culture, dream validation of conjuring is not merely a theory, it actually involves real dream experiences of the required pattern, interpreted as divine revelation. The mechanical means employed to shake the tent may then be looked upon as a sort of necessary materialistic evil. Since everyone accepts the supernatural origin of significant dreams, the sincere conjurer is supported by this common tenet of belief, as well as by his private experience. Within such a cultural context, surely this must be convincing enough to make most individuals feel that their efforts are supernaturally inspired. The native charlatan then is a man who has *not* experienced the stereotyped dreams

[12] Possession, *i. e.*, the belief that a spirit (evil or otherwise) may enter the body of a human being and control his behavior, is as foreign to the ideology of most New World cultures as it is conspicuous in those of the Old World. *Cf.* Franz Boas, America and the Old World, p. 27 (Proceedings, International Congress of Americanists, Göteborg, 1925); T. K. Oesterreich, Possession, Demoniacal and other, N. Y., 1930, pp. 292-3.

demanded by the culture pattern yet, motivated by a desire for prestige or the material compensation involved, undertakes to conjure. I would guess that W. Goosehead was one such man. It is even conceivable that his specific fears *were* actually connected with some personal version of supernatural retribution that made him dread going into the woods alone on account of some danger from this particular source.

CASE 2.—*Confession of Some Secret Sin as a Means of Helping to Cure One's Offspring From an Illness.*—Sickness due to this cause, as I have said, is designated by a special term. Although I was not able to secure the details of it, one case of this sort did arise in the summer of 1934. In this instance, as in others of its kind, the diagnosis of the illness as due to some moral transgression on the part of a parent, was obtained by conjuring. The father of the youth who was taken ill was supposed to have confessed to the conjurer. What his crime had been, I was unable to find out. His son suffered from spells of unconsciousness and whether the boy finally recovered I do not know. But since every one can find some hidden deed that troubles him, the illness of the child furnishes, in Saulteaux culture, the occasion, and the confession the means, for the release of a psychic tension and for the cure of an illness at the same time. Of course the transgression must be a serious one and likewise conform to the panel of Saulteaux crimes.

II. AN APPEAL TO LOVE MAGIC TO RELIEVE SHAME, EMBARRASSMENT, AND PERHAPS UNCONSCIOUS GUILT, AS WELL AS TO COMBAT A SOCIAL ATTITUDE OF RIDICULE.

CASE 3.—A young man was discovered sleeping with an old woman. Everyone teased him about it and made him very much ashamed. No one in his proper senses, according to my informant, would ever have thought of sleeping with the old woman in question. Besides, the young man was in no way cut off from younger women. Consequently, the fact seems established that the old woman was the young man's choice, or, in psychological terms, a genuine compulsion. This was likewise the level on which the young man explained his conduct. He said that he had once insulted the old woman and that, in revenge, she had lured him to her by love medicine. He remembered nothing from leaving his tent until he found himself at the old woman's side at day-break. My informant was convinced by this explanation and offered the anecdote as convincing proof of the effectiveness of love magic. The other Indians were probably as well satisfied with the boy's personal defense; the terms of rationalization chosen by him were effective. Since the belief in love magic is strongly entrenched, even among the contemporary Saulteaux, his psychic stress could be most satisfactorily resolved by this particular explanation. In terms of native belief he became volitionally absolved in the opinion of others and possibly to himself, because it is quite possible that the old woman was actually a mother surrogate. Assuming this to have been the case, and that he actually had insulted her, the act might have been an

overt defense reaction to only partially repressed inclinations towards the intimate relations which finally took place. The sexual act itself would then be a symbol of incest, the compulsion towards which he was no longer able to suppress. In these premises, his claim that the old woman had employed love magic was doubly appropriate; it not only protected him from the ridicule of his fellows, but also protected his own ego from knowledge of his unconscious desires.

III. The Rôle of Dreams in the Resolution of Psychic Stress.

A. Dreams of having one's soul kidnapped and escaping from a conjuring lodge, as symbols of self-punishment and release from some specific guilt and fear.

According to native theory, a conjurer with malevolent intent may abduct the soul of a sleeping victim. To be able to accomplish this, he must have a conjuring lodge set up somewhere, enter it, and summon his spiritual helpers to his aid. With their assistance, the soul of the sleeping individual is brought into the conjuring lodge. It may be killed there, and if this happens, the person from whom it was abducted will be found dead the next morning. On the other hand, the soul may sometimes find a way to escape from the conjuring lodge and return to the body of the sleeper. In this case the victim may suffer illness, but not death. The conjurer has missed his chance.

The testimony of individuals who have interpreted dreams of soul abduction as real experiences is accepted by the Indians as proof of the powers of the conjurers. In each of the two following cases, I wish to emphasize the connection of the dream with a previous experience of the individual which engendered a feeling of guilt and, in the first case, actual fear that a particular conjurer would take some malevolent action.

Case 4.—"I was just about 16 years old when someone tried to kill me. This is what happened. We boys were playing ball one day and I got one of them mad. I guess it was my fault. He was a 'humpy' and his father was a conjurer. The 'humpy' looked so funny when he ran that I ran the same way to tease him. All the boys laughed but he got mad and said to me, 'You'll remember this.' This happened in the summer and I soon forgot all about it. I was too young to understand what he meant. The next winter, in March (Eagle Moon), we were camped about four miles up the river and all ready to pull out the next day. Everybody was well. That night after I had gone to sleep I saw someone coming from the north directly

towards the camp. It was a young man. He came and stood at my feet as I lay sleeping. He spoke to me: 'You are wanted over there,' motioning with his lips towards the north. I got up and started off with him. I found that we were traveling through the air, not along the ground. I looked up and saw a river ahead of us and just one bark covered tipi. I could see the kind of trees growing there. There were lots of very straight Jack pine on the north side of the river. Now we came down to the ground near another kind of 'tent.' I walked into it. There was humpy's father in the center. I could see no end to the tent, it stretched out as far as I could see and it was full of all kinds of people. I knew then that I was inside a conjuring lodge. 'I'm going out,' I said. But the old man said, 'No. You can't go.' Then I saw my own head rolling about and the 'people' in the lodge were trying to catch it. I thought to myself that if only I could catch my own head everything would be all right. So I tried to grab it when it rolled near me and finally I caught it. As soon as I got hold of it I could see my way out and I left. Then I woke up and I could not move my legs or my arms. Only my fingers, I could move. But finally I managed to speak. I called out to my mother to make a light. I told her I was sick. I could not manage to move my head. When morning came I was still sick. I told my father about what had happened. He knew at once that someone had done something to me and that I had really been in a conjuring lodge. All that day and the next I lay sick. Then I got better. It was my soul that the conjurer had drawn away while I was asleep. If it had not found its way back to my body, I would have been found dead in the morning."

That both guilt and fear were involved in this case, is, I think, plain; guilt, because the boy's deliberate mimicry was evidently in disharmony with the demands of his conscience, and fear, because of the implied threat of subsequent harm, coupled with the fact that the hunchback's father was a conjurer. The induction of fear arose from the native belief in the malevolent powers of conjurers, typical of this culture. A similar interpersonal situation, involving individuals of a different cultural context, would not have caused the same emotional precipitate. The striking fact is that the cultural pattern of the society in which this situation seems to have created inner tensions in an individual, also provided a means for their resolution. In gross psychological terms, the manifest content of the dream not only met the cultural requirements in regard to a type of vengeance that the conjurer might be expected to take, but also it functioned unconsciously as a means of self-punishment, in this latter respect doubtless meeting what were inner psychic demands. By so doing, it resolved the psychic tensions which had arisen. It may also be surmised in this case that the physical symptoms were also involved. I do not mean that they necessarily were psychogenic; they may have been seized upon, let us say, by the super-ego and exploited concomitantly with the dream, as a convenient means at hand for ego punishment. Since in the account as given, the individual was quite certain that he had successfully escaped the conjurer's clutches, it would seem that an equilibrium was achieved and that his ego had sloughed off both guilt and fear as a result of the dream experience and subsequent illness.

CASE 5.—I was told of another Indian who had a similar dream experience, but I was unable to secure his own account of it. Here again it is significant that several months prior to this particular dream, he had committed an act of defilement which, if I understand the attitude of these Indians aright, might well have continued to trouble his conscience.

This youth was out hunting with some other young fellows. They came upon some traps belonging to the Indians of an adjoining band. The youth had to defecate. His companions dared him, as we would say, to defecate on one of the traps. He did so and sprung the trap so that a piece of the excrement was left sticking out. Now this sort of defilement was not only an insult to the owner of the trap, it was also a deterrent to any animal that might prowl that way, and worse still, it was an affront to the "spiritual" owner of any animal species. This latter was the worst offense of all. No wonder then, that this youth needed absolution. There came a dream in which his soul was abducted, but managed to escape from a conjuring lodge. I find one detail in my notes which seems to clinch the connection: The young man dreamed that his soul was taken into the lodge of a conjurer of the same band as that of the man whose trap he had defiled.

B. A dream of self-reassurance that a son would recover from an illness that also was a token of semi-emancipation from pagan beliefs.

CASE 6.—W. B., who is the Chief of the Berens River Band today, was about 10 years old when the first Christian missionary came to live on the Berens River. His father, chief before him, was the first Christian convert on the river and was married to a white woman. The paternal grandfather of W. B., however, was a thorough-going pagan, who lived to be a very old man and seems to have been greatly admired by his grandson. W. B. spent a good deal of time with him and thus was subjected to typical aboriginal beliefs along with the Christian aspirations of his parents. An old man today, W. B. is consequently the product of mixed Saulteaux and Christian traditions.

In order to understand the possible significance of one of the dreams of W. B., one needs information on the native beliefs in regard to *micipiju* (the Great Lynx),[13] a semimythical animal, and on the attitude of the Saulteaux towards dream visitations of this creature. It must be understood, of course, that the Great Lynx is held to have a real existence. But unlike almost all other spiritual entities that appear to man in dreams, this *pawagan*[14] brings misfortune. The Great Lynx will appear to a boy as an attractive woman inviting seduction, and to a girl in a male guise. To become involved in such a relationship provokes the unremitting jealousy of this being. If the individual who experiences such dreams later marries, his or her spouse will die

[13] Conceptually modeled upon the cougar or mountain lion (Felis Couguar) which was once found practically all over North America as far north as the Great Lakes.

[14] *I. e.*, dream visitor.

or the children of the marriage will sicken and die. Consequently, it is the native dogma that individuals who have dreamed of the Great Lynx should avoid marriage. If such a person should want to risk it, their prospective spouse, if an inkling of such a dream leaks out, will not go through with it. How potent the belief has been in actually deterring the marriages of thorough-going pagans, I do not know. But there are extremely few unmarried individuals among the Saulteaux. Nevertheless, it may be assumed that the belief is likely to be a source of latent fear in such individuals as do run the risk of marriage subsequent to dreams of the Great Lynx. That this was actually so in the case of W. B., despite the fact that he was a Christian, is proved by a significant coincidence.

W. B. had several such dreams, but he was not inhibited from marrying. A few years after his marriage, one of his sons became critically ill. While the boy was sick, W. B. again had a dream visitation from the Great Lynx. He was thoroughly alarmed, thought his son was going to die, and consulted a conjurer about the matter. (I failed to ask him whether he prayed about it, too.) The conjurer promised to help overcome the Great Lynx. The next night W. B. received another visit from this *pawagan*. On this occasion they had a terrific fight. W. B. was completely victorious. He escaped without a scratch. This, he said, was because his own guardian spirits came to his aid as well as those of the conjurer. When the latter learned of the outcome, he assured W. B. that everything would be all right. And the sick boy did recover.

This dream exposes another facet of the linkage of theories of disease and its cure in Saulteaux culture patterns. The dream victory of W. B. over the Great Lynx relieved the immediate stress caused by his concern over the son's illness. But I think that it may also have symbolized the inner conflicts of W. B. with respect to the mixed authority of pagan and Christian beliefs which he held simultaneously. Today at least, while outwardly adhering to the Christian faith, W. B. is profoundly convinced of the truth of many pagan beliefs. Yet, he has had more contact with the whites than any man on the river. His conscious aspirations are focused in many respects towards the culture patterns of the white man, but at the level of belief, he is much less emancipated from aboriginal patterns than are his wife and children. While his dream is of a culturally stereotyped pattern relevant to the son's illness, it may likewise have symbolized, in a more personal unconscious sense, the desire of W. B. to be still further freed from the influence of native beliefs. Since he was victorious over the Great Lynx and his son recovered, the dream may have given him unconscious assurance that he had at least freed himself from one native belief with impunity.

C. Supernatural dream revelation as a means of validating the gratification of an incestuous desire, tabooed by custom and under a disease sanction.

CASE 7.—All the incest taboos among the Saulteaux are upheld by a disease sanction. Marriages of certain classes of near kin are believed to be fol-

lowed by the sickness and death of offspring. Specific cases are cited to prove the inevitability of these consequences. The genealogical data show that incest taboos are actually in operation. Sib exogamy is sometimes broken, but usually such sib mates are not blood kin, since distinct family lines may have the same totemic name. Marriage of any close blood relative, on the other hand, except a cross-cousin, is extremely rare, although I have recorded a few cases. No case of father-daughter or mother-son marriage has ever been heard of, and the case of full brother-sister marriage I wish to discuss is unique, an outstanding psychological achievement for the man who undertook it. It involves the overcoming of a severe brother-sister taboo which embraces parallel cousins and other individuals to whom the sibling terms are applied in daily life. The taboos between siblings of opposite sex not only forbid sex relations but also restrict their social intercourse. From a psychological point of view, it might well be expected, in view of these systematic repressions, that deviant individuals might appear from time to time to challenge their authority. At any rate it may safely be assumed that there was considerable psychic stress engendered in this individual who did so. Such a man was Sagaski. It is significant that he was no common mortal but a man reputed to possess unusually strong magical powers, and to have many supernatural helpers at his command. On this account, he was in the best strategic position possible to do as he pleased. This is probably an objective judgment rather than one which assumes the point of view of the Saulteaux themselves. For Sagaski did not do simply as he pleased. He did not live with his sister until he let it be known that one of his guardian spirits—the spiritual "owner" of the beaver—*commanded* him to take his sister as a wife, in short, to follow the beaver mating pattern instead of the human. Now since dreams are believed to be the medium of communication among the Saulteaux between man and the supernatural world, Sagaski did nothing less than invoke the highest authority possible for his marriage—a supernatural one. Furthermore, it is believed to be a sin *not* to follow the instruction received in dream revelations. In terms of Saulteaux theory, then, Sagaski had a perfect case. And I have no doubt, moreover, that he actually dreamed the dream he reported. Considering the psychological function of a dream theory such as that to which the Saulteaux adhere, it seems to me that their dreams should serve them in this way. At any rate, it is easy to understand how Sagaski's marriage to his sister was validated in the most effective terms which the culture itself, although tabooing incest, could offer. But there is another chapter to the story.

Evidently the guilt feelings experienced by Sagaski were not quelled even by the supernatural sanction he invoked. Perhaps his culture was too elastic, and perhaps there were deeper psychic involvements which only some means of ego punishment, not supplied by the prevalent culture patterns, could balance. At any rate, many years later, after he had had three children, he tried to induce one of them, a son, to marry his sister. But the boy refused. It would seem that this behavior of Sagaski may have represented the still latent need to justify his own previous conduct. It may even have been in

response to a need to circumvent incestuous desires for his own daughter. This latter possibility receives some measure of support from a few details about the family. Sagaski's sister-wife died and only one of the children of this incestuous marriage now survives. This daughter never married and neither did two daughters by a second marriage. This is most unusual among the Saulteaux. Moreover, Sagaski trained his daughters to do many of the tasks men usually perform and guarded them much more closely than Saulteaux fathers ordinarily do. In summer, he used to camp with his family on an island and would never let the young men passing up and down the river put up their tents there even for a single night.

It would also be interesting to know how individuals in other societies, with different culture patterns, have managed to win sufficient social approval to enable them to break such a universal incest prohibition. In a recent article, C. M. Garber [15] refers to genealogical data he had collected on an Eskimo family on the Kuskokwim River. He stresses the inbreeding that he found. This includes cousin marriages and he adds, "it is not extremely rare that brother married sister." He also recorded four cases in which a father married his daughter. One cannot but wonder what was the attitude towards these marriages. Were they casually undertaken and socially accepted like other marriages? Were the individuals concerned subject to no resulting psychic stress, or were they, like Sagaski, forced to resort to some established cultural means in order to justify and support their conduct?

In human history, supernatural sanctions of various kinds seem to have been an almost constant factor in the support of established cultural institutions. It is less frequently emphasized that they have been likewise the court of appeal for the deviant behavior of the individual. The double rôle which this sort of authority has played is of very considerable psychological importance. Hallucinations, delusions, visions and dreams, as culturally interpreted, have provided the individual with possible ways of adjustment to psychic stresses and to accepted social values. These individual adjustments must of necessity depend upon specific culture patterns. Without the values and the attitudes integrated with them and shared by one's fellows, one becomes isolated in a subjective world. If one cannot communicate with others through the medium of common cultural values, it is not possible to make one's deviant behavior

[15] Marriage and Sex Customs of the Western Eskimo. Scientific Monthly, vol. 41, September 1935.

plausible to one's fellows. It is quite possible that the decline of supernaturalism in western civilization has forever undermined the status of a generic culture pattern which, in a multitude of forms, has been an effective, although to us naïve authority, previously available to the individual as a means of resolving various forms of psychic stress. At the same time, certainly, one must not forget the potent rôle that supernaturalism has played in causing psychic stress.

IV. Intra-Psychic Conflict in the Guise of Transformation into a Windigo (Cannibal).

Finally, I should like to draw attention to a brief account by David Thompson of one of those numerous cases of *cannibalistic desires* (*the so-called "windigo psychoses"*), which occur so typically among Cree and Ojibwa Indians. Whether all such cases can be regarded as some form of mental disorder with a culturally patterned symptomatology, is a question which Cooper and I have discussed elsewhere.[16] Let me quote the case reported by Thompson [17] as an instance in which cannibalistic desires on the part of a young man may possibly have been the culturally determined disguise of unconsciously activated incestuous desires. The youth concerned expressed a desire to eat his sister.

The episode took place in an Ojibwa summer encampment on the Lake of the Woods in 1798. Thompson says:

> One morning a young man of about 20 years of age on getting up, said he felt a strong inclination to eat his sister; as he was a steady young man, and a promising hunter, no notice was taken of this expression; the next morning he said the same and repeated the same several times in the day for a few days. His parents attempted to reason him out of this horrid inclination; he was silent and gave them no answer; his sister and her husband became alarmed, left the place and went to another camp. He became aware of it, and then said he must have human flesh to eat, and would have it; in other respects, his behavior was cool, calm and quiet. His father and relations were much grieved; argument had no effect on him, and he made them no

[16] Hallowell, Culture and Mental Disorder. Journal of Abnormal and Social Psychology, vol. XXIX, no. 1, 1934, pp. 1-9, *op. cit.* and J. M. Cooper. Mental Disease Situations in Certain Cultures. *Ibid. Cf.* also Cooper, The Cree Witiko Psychosis. Primitive Man, Vol. VI, 1933.

[17] J. B. Tyrrell. (ed.) David Thompson's Narrative of his Explorations in Western America (1784-1812), Champlain Society, 1916, p. 259 *seq.*

answer to their questions. The camp became alarmed, for it was doubtful who would be his victim. His father called the men to a council, where the state of the young man was discussed, and their decision was, that an evil spirit had entered into him, and was in full possession of him to make him become a Man Eater (a Weetego). The father was found fault with for not having called to his assistance a Medicine Man, who by sweating and his songs to the tambour and rattle might have driven away the evil spirit, before it was too late. Sentence of death was passed on him, which was to be done by his father. The young man was called . . . . [and] . . . . informed of the resolution taken, to which he said, "I am willing to die"; the unhappy father arose, and placing a cord about his neck strangled him, to which he was quite passive; after about two hours, the body was carried to a large fire, and burned to ashes, not the least bit of bone remaining. This was carefully done to prevent his soul and evil spirit which possessed him from returning to this world and appearing at his grave; as they believe the souls of those who are buried can, and may do, as having a claim to the bones of their bodies. It may be thought that the council acted a cruel part in ordering the father to put his son to death, when they could have ordered it by the hands of another person. This was done, to prevent the law of retaliation; which had it been done by the hands of another person, might have been made a pretext of revenge by those who were not the friends of the person who put him to death. Such is the state of society where there are no positive laws to direct mankind.

The other reported cases of the *windigo* psychoses that have come to my attention are not detailed as to the person or persons towards whom the cannibalistic desires were directed. In those of which I had an opportunity to inquire, I have not succeeded in securing this particular information. The conviction has grown in me, however, that we have a particularly significant field for exploration here. Psychiatrists have reported data suggestive of a relation of the act of eating and the sex act, and have inferred a generalized symbolic relationship. Be this inference warranted or otherwise, it certainly offers an intelligible hypothesis in the case reported by Thompson, which in turn is an illustration how an unconscious symbol may become reified in the terms of a specific culture pattern. I have elsewhere [18] questioned whether the "*windigo* psychosis" is to be regarded as a unitary type of mental disorder, and have suggested that further investigation will probably reveal that the cannibalistic pattern functions as a cloak for a variety of mental processes. They would seem, however, in every case to be particularly well worth

[18] Culture and Mental Disorder, *op. cit.*

detailed study to elucidate the relation between psychic stresses and culture patterns in the individual.

In conclusion, let me make due apology for the fragmentary nature of my facts, and the extended inferences that I have drawn from them. The purpose of this paper is not the solving of problems, but the pointing out of the relevance of anthropological field data to investigations in the relations of culture and personality. It seems that the anthropologist, if he were aided in formulating his problems by the psychiatrist sensitive to the implications of culture, might well collect data on the behavior of individuals in societies with culture patterns different from our own that would be of real significance to psychiatry. The relation of psychic stresses to the patterns of our own culture may perhaps best be attacked by way of the pseudo-experimental setups that are available for study elsewhere in the world.

OVERLAPPING SYMPTOMS IN CATATONIC EXCITEMENT AND MANIC EXCITEMENT.

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I. Introductory.

This study is a sequel to a paper entitled " Psychogenic Factors as Causative Agents in Manic-Depressive Psychoses." *

In the discussion of this paper it was stated that we intended using it as the basis for a long-continued study. As might have been foreseen, the research has taken a course deviating considerably from what we had then in mind, but it is nevertheless closely related to the study of 1928-30.

The material for the earlier research was obtained by making intensive individual observations and social service study of 100 patients diagnosed as cases of manic-depressive psychosis. In order to avoid arbitrary selection of cases, we planned to base the study upon consecutive admissions to the hospital, using all cases so diagnosed within a specified two-year period, and only those. In this project we had the cooperation of the staff physicians, who endeavored both to give us full information concerning all patients included in the group and also to prevent any doubtful cases from being erroneously included. However, we discovered in the early stages that we could not invariably accept at face value the diagnosis agreed upon by the staff. Patients for whom this was the first attack had been under observation only one month at the time when the diagnosis was passed upon, and our subsequent observations frequently led us to question it. Among the patients who had suffered several attacks, we found some who had been previously diagnosed as cases of dementia præcox. Thus we found it necessary to review the diagnoses for all cases except those which had

* Read at the meeting of the Association for Research in Nervous and Mental Disease, New York, December 29, 1930. Published in Manic-Depressive Psychoses, Proceedings of the Association, Williams and Wilkins, Baltimore, 1931.

been repeatedly diagnosed manic-depressive psychosis. By the time we had collected 100 cases which we felt safe in using, we had weeded out 47 cases which seemed too doubtful to be included, thus sacrificing 31 per cent of the data accumulated. (One of the rejected cases appeared after recovery and readmission to have been after all an acceptable case; and several cases which we accepted have since been readmitted under a diagnosis other than manic-depressive psychosis.)

As our attention became increasingly centered upon the difficulty and uncertainty of almost any diagnosis based wholly or primarily upon mental symptoms, we had occasion to notice in particular the strong similarity between manic excitement and catatonic excitement. We found no such clear dividing line as might be inferred from a study of standard textbooks. It appeared rather that a person whose inhibitions are released by reason of mental illness is likely to present certain characteristic behavior patterns, the exact manifestations depending more upon the degree of excitement than upon the nature of the psychosis.

Thus our observations led us, early in 1931, to a study of the symptoms found in excited patients who were diagnosed either dementia præcox or manic-depressive psychosis.

II. Method of Study.

Certain specified symptoms, to be noted for each case, were grouped on a page which was printed by mineograph. A full sheet was used for each patient, and we checked off on this printed page any symptoms reported in the case record as being present.*

Our personal observations have been included also when possible, but the greater part of the material has been taken from the hospital records. Without discounting the importance of making personal observations, we have by no means wished to draw the data primarily from so limited a source. To observe and name the mental symptoms of a disturbed patient from whom no cooperation can be expected must of necessity involve considerable play of

* In this work of reading through the records and checking any symptoms found there, we have been assisted by various members of the department of psychology. Our grateful acknowledgments are due especially to Arthur Ruggles, Jr., Alice Schoenfuss, Lucy Sanborn and Dorothy McLeod.

personal bias on the part of the observer. In order to reduce this factor to the minimum, we have considered it desirable to have the data drawn from as many observers as possible. To this end we have searched the records for mention of the specified symptoms, and have included any symptom reported at any time by any physician. In addition to the Danvers records of the past 20 years, we have used a large number of records from the Boston Psychopathic Hospital and a few from various other hospitals in which a patient has been observed at some previous time. Also we have included a few cases not observed by us at all—exceptionally clear manic-depressive cases taken from the files of Butler Hospital and Worcester State Hospital. The exact number of observers from whom we are quoting is not known, but it is a fairly safe estimate that some 50 persons have made a considerable contribution to our data and that 50 others are represented each by a few items.

III. Outline of Symptoms.

We started with a list of 76 symptoms or descriptive terms, some significant as manifestations of excitement and others included for their diagnostic import. This list has since been reduced to 40 items, as follows:

Physical Symptoms.

Marked cyanosis.
Cerea flexibilitas.
Tube feeding required.

Mental Symptoms.

Memory defect.
Confusion.
Attention defect.
Distractibility.
Hallucinations.
Paranoid ideas.
Other delusions.
Ideas of reference.

Emotional State.

Silly, shallow reaction.
Indifference, apathy.
Exhilaration.
Irritability.
Depression.
Instability.

Verbal Production.

Over-talkative.
Flight of ideas.
Play of speech.
Facetiousness.
Stereotyped speech.
Verbigeration.
Irrelevance.
Incoherence.
Retardation.
Blocking.
Mutism.

Behavior.

Seclusive.
Sociable.
Resistive.
Over-active.
Playful.
Untidy in habit.
Denudative.
Destructive.
Negativistic.
Impulsive.
Mannerisms.
Attitudes.

Some of the original items have been deleted as being unimportant, and others have been sacrificed because we found it impossible to obtain trustworthy information about them. Insight, for example, is a symptom which may develop almost overnight in a patient who has just been reported as having no insight. It appears that insight is characteristically lacking during the period of strong excitement, but we have found comparatively few patients of either diagnosis concerning whom it is reported to have been totally absent during the whole psychotic period. Insight is a significant symptom, but it does not lend itself readily to a cross-section study. Deterioration is another symptom which we have not been able to include, because there are so many cases in which it may or may not be present.

It is by intention that we have omitted certain non-specific symptoms which are so nearly universal in a state of excitement as to be taken for granted. We expect an uninhibited patient to be noisy and profane; violent and assaultive. Such symptoms have so little diagnostic importance that it has not seemed worth while to include them in our outline, although we have found them very frequently mentioned in the case notes.

Other symptoms, significant in themselves, have been omitted because we have found so little mention of them. It means something when it can be reported that a patient is alert and observant, but this item is rarely found in our case notes. It would be misleading to assume that a symptom is not present unless we find it on record.

There is a tendency for observers to use stereotyped phrases when dictating psychiatric notes, and we have to take the records as we find them. As this is a statistical study of symptoms previously recorded, we have used the descriptive terms found in the records rather than those of our own choice.

IV. Selection of Cases.

Having already found it impossible to use unselected cases of manic-depressive psychosis exactly as diagnosed on admission, we did not attempt this time to make the selection of cases wholly fortuitous. In the early stages we listed every potentially usable case that came to our notice, not expecting to use the list in full.

When the study was well advanced we formulated the following criteria for selection:

1. *Excitement.*—Each patient included must have had a period of marked excitement during his residence in some mental hospital, and there must be adequate record of his behavior while in an excited state. Some patients have been transferred to this hospital in a state of depression or stupor, and we may have had no opportunity to observe the excitement; but such a case may yet be included, if we have a detailed psychiatric report of excitement as observed in another hospital.

2. *Diagnosis.*—In each case the diagnosis must be either dementia præcox or manic-depressive psychosis, as opposed to some organic or traumatic condition. This does not necessarily exclude a post partum case or other case in which the etiology of the attack is referred to a somatic condition, but does exclude a case which has at any time been definitely diagnosed with reference to a somatic condition. A previous diagnosis of "psychoneurosis" or "undiagnosed," however, is not considered sufficient ground for rejecting an otherwise acceptable case.

3. *Symptoms.*—No particular symptom observed or recorded is to have any weight in determining our acceptance of the diagnosis which has been placed officially on record, except for excluding doubtful cases. These symptoms which we are observing must necessarily have influenced the opinions of those who passed upon a case for diagnosis, but their bearing upon the diagnosis is a closed issue. To make further use of the same symptoms in selecting our cases would involve reasoning in a circle.

4. *Exclusions.*—Foreign-born patients have been included only when having sufficient command of English to permit their verbal production to be observed. Many cases on the preliminary list have been ultimately rejected on the ground that the record of specific symptoms was too scanty, possibly because the patient's residence in the hospital was too short to permit adequate observation. A few have been excluded on the ground that the excitement was of so extreme a degree as to make proper study impossible. For a patient who has been observed only in a state of wild excitement, the diagnosis is too uncertain to be considered valid. Although excitement is what we are observing, it is essential to have some knowledge of the patient in a relatively normal state.

The ideal case for this study is a patient who has had at least three different attacks covering a period of several years, who has been studied in more than one hospital, admitted always under the same diagnosis, with practical unanimity of vote for the diagnosis and with abundant expression of opinion at each presentation concerning the basis for the diagnosis. It would be desirable further to include our personal observations in checking the symptoms reported, while scrupulously eliminating our own opinion as to diagnosis.

In point of fact, cases diagnosed unanimously the same for three attacks are so rare that it might well take a lifetime to collect any considerable number of them. We are using material which falls short of this ideal, including some cases in which the vote on diagnosis was not quite unanimous and also some extremely clear cases in which there is only one attack on record. And yet it can be claimed that our selection of cases has been influenced by these ideal criteria which we can only approach, not attain.

The 1930 study, which included more cases of depression than of manic excitement, yielded only 22 cases which conform to our criteria for selection. Inasmuch as these cases had already been studied exhaustively, they were taken over as the nucleus of this project. The large majority of the cases have been found by taking the names of newly admitted patients when they were presented at staff conference for diagnosis. Significant symptoms which the patients manifested were noted down at the time, and thus some observations were made incidentally.

V. Classification of Cases.

The cases studied fall naturally into three groups—dementia præcox, manic-depressive, and doubtful. There are 100 cases in each group, because we discontinued collecting cases of a given group as soon as that number was reached.

The collection of doubtful cases as such was an after-thought and a bi-product. Among the cases listed with reference to excitement—diagnosed either dementia præcox or manic-depressive psychosis—any cases which evoked a strong difference of opinion were given a special place in the card index, pending further observation. When the criteria for selection were formulated, it became clearly apparent that these doubtful cases were too important numerically

to be disregarded, so we continued to list them up to the number 100. Fifty-eight of these have been definitely diagnosed both dementia præcox and manic-depressive psychosis, either in different hospitals or in this hospital at different times. In the other 42 cases the minority opinion was so strong as to exclude them from either of the diagnosed groups.

SYMPTOMS RECORDED IN MANIC EXCITEMENT AND CATATONIC EXCITEMENT.

One Hundred Cases of Each.

	D. P.	M.-D.
Gross Physical Symptoms.		
Marked cyanosis	8	1
Cerea flexibilitas	15	2
Tube feeding required	27	8
Mental Symptoms.		
Memory defect	31	18
Confusion	64	40
Attention defect	49	28
Distractibility	38	74
Hallucinations	87	43
Paranoid ideas	66	48
Other delusions	52	59
Ideas of reference	34	18
Emotional State.		
Silly, shallow reaction	64	45
Indifference, apathy	52	14
Exhilaration	76	85
Irritability	66	80
Depression	42	49
Instability	57	56

	D.P.	M.-D.
Verbal Production.		
Over-talkative	62	96
Flight of ideas	33	91
Play of speech (rhyming, punning)	10	27
Facetiousness	15	35
Stereotyped speech	29	7
Verbigeration	14	12
Irrelevance	83	60
Incoherence	83	69
Retardation	28	16
Blocking	29	2
Mutism	48	8
Behavior.		
Seclusive	63	17
Sociable	55	73
Resistive	75	36
Over-active	89	96
Playful	17	48
Untidy in habit	64	30
Denudative	38	38
Destructive	44	54
Negativistic	52	8
Impulsive	75	62
Mannerisms	47	34
Attitudes	24	9

VI. Presentation of Findings.

The results of our search through the records for mention of the specified symptoms are shown in tabular form, in parallel

columns for the two diagnosed groups, so that the overlapping symptoms may be conveniently compared.

This table should be examined more with reference to the discrepancies than to find confirmation of what would be expected. In most instances it is the smaller number that should receive attention, rather than the larger number. No one will be surprised to find that such symptoms as hallucinations, indifference or apathy, resistiveness and negativism are observed much more frequently in the dementia præcox group; nor that distractibility, flight of ideas, playfulness and facetiousness are found more frequently in manic-depressive psychosis. It is worthy of notice, however, that so many characteristic symptoms of excitement (not counting the more obvious manifestations which we omitted as being not distinctive of either group) are found almost equally in the two groups; and that each of the symptoms here enumerated is reported in at least one case of the group in which we should not expect to find it. For example, we have a manic-depressive case in which both blocking and cerea flexibilitas are reported, both these symptoms having been checked by our personal observations. The patient is a man of fifty who has been under observation intermittently for 20 years, having been admitted five times to this hospital and invariably diagnosed manic-depressive psychosis with something approaching unanimity. The case conforms as well to our ideal criteria for certainty of diagnosis as can be claimed for almost any case in the manic-depressive group.

Probably some of the discrepancies found in the table are due to the vagueness and uncertainty with which our psychiatric concepts have been defined. It is quite possible, for instance, that what was reported as retardation in some cases of dementia præcox might more appropriately have been characterized as blocking. Many of our manic-depressive cases are on record as having had at least one attack of the depressed form of the psychosis, and it is difficult to believe that the symptom of retardation was actually present less frequently in this group than in the dementia præcox group.

The doubtful cases are not included in the table, because they do not lend themselves to statistical treatment. The significance of the doubtful cases lies in their existence rather than in any symptoms observed in them.

For any patient of the diagnosed groups, one need only glance over the page of symptoms to see upon what the diagnosis was based. It is true that we find startling discrepancies in many cases, and yet it is clear that the majority of the symptoms are in accord with the diagnosis. For the doubtful cases, on the other hand, the symptoms enumerated constitute a bewildering mixture, devoid of any consistency. Feeling in doubt about the diagnosis itself, we are at a loss to know which symptoms may be considered characteristic and which are to be regarded as discrepancies.

VII. Inherent Defects in the Study.

The items found and tabulated are in no sense exhaustive, and we have no way of knowing what other symptoms might have been enumerated for each patient.

Comparatively little attention has been paid to physical findings, except for the purpose of excluding any cases in which such symptoms are believed to be of primary importance. Inasmuch as the technical work has been done chiefly by persons not qualified to interpret the physical findings, it has been a matter of necessity to base the study upon mental symptoms.

When diagnosing a case by mental symptoms it is difficult or impossible to rule out the personal prejudices of the observer. Each of our items represents the opinion of someone, an opinion on which we have no check. Nor does our work of collecting the data admit of strict controls. Varied and insidious are the ways in which the personal equation can creep into a research that is intended to be as objective as we can make it. Our interest in this problem has frequently come to the surface in the discussions at staff conference, and it must have had some influence upon the diagnosis offered by the physician presenting a case. However, the natural effect of this influence would be to swell the list of doubtful cases rather than to distort the evidence in favor of either diagnosis. The confidence with which we used to accept the diagnosis of manic-depressive psychosis received a rude shock in the course of the earlier study, when we found it necessary to reject 31 per cent of the cases so diagnosed. Our habits of thought with reference to diagnosis have been appreciably affected by that experience, and our sense of uncertainty must inevitably have spread to our colleagues. Hence it is not significant that we completed the list

of doubtful cases nearly a year ago whereas we had to go outside of this hospital to make up the list of manic cases. The ease with which we collected 100 doubtful cases may be somewhat discounted as a peculiarity of this hospital at this time; but by the same token we can claim a higher degree of reliability for the diagnoses which meet the requirements of our criteria. It is far more likely that we have erred in excluding some cases which might safely have been used in one of the diagnosed groups than that we have accepted under either diagnosis any cases which should have been counted as doubtful.

VIII. Significance of the Findings.

It is not safe to draw definite conclusions from a statistical study based upon so small a number of cases, especially when the material was obtained by so crude a method as merely noting and tabulating such items as happened to be on record. However, the findings are not wholly without significance.

It is pretty well recognized that diagnosis by mental symptoms is little more than a makeshift; but inasmuch as state hospital patients are actually being classified in accordance with these manifestations, it is of some advantage to know the sources of error and to have some of the resulting inaccuracies expressed in figures. It is to be hoped that our present emphasis upon mental symptoms in the diagnosis of these two conditions is only a temporary expedient. The writers of this paper can remember when the diagnosis of general paresis was based largely upon delusions of grandeur accompanied by certain gross neurological findings. It is not too much to expect that we may sometime have a method of differentiating manic-depressive psychosis from dementia præcox, considerably more accurate than any method now available. But so long as we make use of crude descriptive methods which do not admit even of psychological experimentation, it is worth while to consider what might be done to make the inevitable errors in diagnosis a little less far-reaching in their effects.

If our results prove anything at all, they show that it is frequently a matter of years to determine the diagnosis that the hospital is expected to put on permanent record within one month. If we have learned anything from our seven-year study of patients

classified as manic-depressive cases, we have learned that there are cases which we cannot diagnose to our satisfaction even after years of careful observation.

It is therefore unfortunate for the accuracy of our statistics that many state hospitals are held responsible for naming a diagnosis in each and every case. The category of "undiagnosed psychosis," formerly recognized as a necessary provision for undiagnosable cases, is now usually accepted only for temporary classification, pending a "determined diagnosis." Our work on these records leads us to believe that the official recognition of an undiagnosed group would add greatly to the significance of diagnosis for such cases as can be diagnosed. If our 100 doubtful cases had been included in the two diagnosed groups, they would have increased the number of cases in each group but would at the same time have so vitiated the results as to make the findings entirely worthless. It is because we have so scrupulously weeded out the doubtful cases, (not only those cases that are technically open to doubt by reason of having been definitely classed under more than one diagnosis, but also those cases which elicited a strong difference of opinion), that we can claim any significance at all for our findings of overlapping symptoms in these two conditions. Of course the overlapping would be much greater if we had included all cases under the diagnoses accepted by the hospital; but so much of the overlapping would be due to inevitable error in diagnosis that it would not seem worth while to collect and tabulate the figures.

For the same reason, state hospital statistics in general would gain in accuracy if the category of "undiagnosed psychosis" were used freely for all cases that cannot be diagnosed with a reasonable degree of certainty. Nor need it be feared that the staff physician would take advantage of this privilege merely to avoid the effort of working up a difficult case. The typical state hospital physician—young, alert, deeply interesed in psychiatric problems—is in his element when presenting a case which stimulates lively discussion and evokes honest disagreement. It is not the labor of looking up all the available evidence that discourages the young psychiatrist from doing his best work on a case, it is rather the feeling of futility arising from the fact that he is expected to attempt the impossible. When he knows that a case is practically undiagnosable

at the time of presentation, it is an affront to his intellectual integrity to expect him to offer a conjecture concerning diagnosis, especially so when he knows that the alternative is to let his patient be diagnosed by others who are less familiar with the case.

The confusion we have found between two conditions so different in respect to the prognoses which they imply leads us to believe that there is much work to be done in defining our psychiatric terms. Not until we have names that can be understood and a system of classification that can be followed with some approach to accuracy can we expect statistical studies depending upon mental diagnosis to have much value except as negative contributions.

THE HEMATOPORPHYRIN TREATMENT OF MELANCHOLIA AND ENDOGENOUS DEPRESSION.

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The hematoporphyrin treatment of melancholic and endogenous depressive disorders, which was first advocated by me, has aroused lively interest on the part of German and foreign authors. A number of American investigators have also studied the therapy. The publication, some time ago, of the findings of Strecker, Notkin and their associates in the AMERICAN JOURNAL OF PSYCHIATRY, was quite recently followed by Angus' and Steinberg's reports in the same JOURNAL. These various reports induce me to summarize briefly the facts relating to the new therapy which have been ascertained up to the present time. This will serve best to remove obscurities and to present new viewpoints.

Some chemicophysiologic facts will require preliminary attention. As is known, hematoporphyrin is derived as follows:

Hemoglobin
is decomposed into

the dye, *Hematin* — the protein, *Globin*

after substitution of an OH-group by Cl

Hematin hydrochloride = Hemin

after cleavage of the iron

Hematoporphyrin

Nencki and Sieber still assumed that hematoporphyrin is formed simultaneously with bilirubin in the organism, particularly in the liver cells. Recent researches, in particular those of H. Fischer and his associates, have shown however that this assumption lacks definite proof. Actually, the chemical composition of the so-called "natural" porphyrins (*i. e.*, porphyrins which occur in the human and higher animal organism) differs distinctly if not considerably from that of hematoporphyrin. Whether this dyestuff is partly converted into a "natural" porphyrin following its oral or par-

enteral administration has not so far been determined. Experiments designed to clarify this point were undertaken at my instigation by Hutschenreuter, under the direction of O. Schumm, but failed to yield the desired elucidation. Nevertheless, Hutschenreuter showed that by far the greater part of the administered hematoporphyrin is excreted, and further studies are in progress.

Bearing in mind that all porphyrins can be derived from Willstaetter's "Aetioporphyrin" (a dye with saturated side chains, which is termed a porphyrin ring), we however recognize the close relationships which exist between the individual porphyrins, including hematoporphyrin, despite the differences in their chemical constitution. And, seeing also that all porphyrins possess one definite property in common, *viz.*, their photodynamic action, these relationships are rendered still more apparent.

It was the photodynamic properties of the porphyrins which caused various authors to study these substances. We are indebted to Hausmann and Guenther for the pioneer investigations in this field, while O. Schumm and his school have furnished the more recent findings. This much is certain, that the intensity of the photodynamic action of hematoporphyrin exceeds that of all other known porphyrins. For this reason I selected hematoporphyrin for my own studies, since it would enable me to achieve the desired effects with the smallest doses and without danger of inducing toxic secondary symptoms which might manifest themselves under administration of larger doses of a photodynamically less active porphyrin.

By means of animal experiments and clinical studies I was able to show that hematoporphyrin actually sensitizes, even when given in minimal dosage, without unfolding the slightest toxic secondary effects. The animals which received hematoporphyrin became livelier and more agile, their appetite improved and they gained weight. In the treatment of melancholic and endogenous depressive conditions the photodynamic effects of the dyestuff manifest themselves particularly in the severely inhibited cases. Often a few days' treatment suffices to bring about a relaxation of the condition, inhibition regresses, and the movements, facial expression and vocal expressions become livelier.

As regards the use of light sources along with the hematoporphyrin treatment, I have not so far adopted any particular source. I

have employed irradiation with the alpine lamp not so much for therapeutic purposes as to convince myself that intense radiation does not cause secondary cutaneous and mucosal symptoms. G. Koegel has recently found that though the concentration of hematoporphyrin which I employ is sensitive to all rays of the visible spectrum, and infra-red, ultraviolet and Roentgen rays of medium wave length, it becomes most active in the yellow. Consequently I consider it desirable to determine whether the selection of particular sources of light might not further reinforce the therapeutic effects of the hematoporphyrin therapy.

I have previously stated that just the sensitizing properties of hematoporphyrin induced me to apply the drug to the treatment of depressive and melancholic disorders. I proceeded from the assumption that this dyestuff might be capable of influencing the vegetative centers through skin sensitization and thereby exert a favorable action in the sensory and volitional spheres. It must be emphasized that this assumption is of value, for the time being, merely as a working hypothesis, though it appears to gain in probability by reason of the observations which I as well as other authors have made in the course of the years. Thus, it has been shown that when hematoporphyrin is administered in the dosage which I employ, it unfolds not merely a photodynamic effect but acts also in two other directions, *viz.*, stimulative-tonic and vegetative-regulatory.

The stimulative-tonic action manifests itself by striking improvement of the appetite, increasing bodyweight, and in the case of attendant secondary anemia by a favorable influence on the red blood picture. In many cases the skin changes are particularly striking. Soon after the institution of the hematoporphyrin treatment the skin becomes more tense, and shows increased turgor, so that the appearance of the patients improves and they not infrequently "bloom" anew. This stimulative-tonic property of hematoporphyrin was observed not only by me, but was also expressly emphasized by other authors (for instance, by Bianchini, Giehm, Klimke, Strecker and his associates, Tieke, and Vinchon). This property of hematoporphyrin is rendered understandable by the researches of Boyd and Wohlgemuth-Szoerenyi, who found that in the presence of pigment sensitizers (to which hematoporphyrin belongs), the oxygen consumption of the living cell increases even

in the dark and still more when the cell is simultaneously exposed to light. The action of hematoporphyrin in this case resembles that of its chemically closely related chlorophyll, which Buergi showed to influence not only erythropoiesis and hemoglobin synthesis but also to increase the metabolic rate.

Quite as distinct as the stimulative-tonic action is the regulatory action of hematoporphyrin in those disturbances which are conditioned by changes in the vegetative equilibrium. In the course of the treatment of melancholic and depressive conditions I have observed improved salivary secretion and regression of the frequently occurring gastrointestinal disturbances and unpleasant symptoms such as fulness of the abdomen and a sense of oppression in the chest. A favorable influence is also exerted on functional cutaneous disturbances, like sweating, changes in sebaceous gland secretion and conditions based on vasomotor disturbances. My observations have been confirmed by Aussaye, Bourgeois, Cimbal, Strecker, Palmer and Braceland, Vinchon and others. The vegetative-regulatory action of hematoporphyrin extends also to the disturbed electrolyte balance. The increased calcium and decreased potassium values which are often found in melancholic patients return to the normal. Kueppers, and more recently Angus, found that in many cases the increased blood sugar values were lowered, while the previously markedly fluctuating sugar tolerance curves again showed a normal course. The French authors showed that hematoporphyrin regulates the hydrogen-ion concentration (pH) of the urine, which often shows a displacement toward the alkaline side in melancholic affections. In this respect the action of hematoporphyrin is the same as that of the acidic drugs which have been employed by Laignel-Lavastine and Cornelius.

Thus we see that when hematoporphyrin is administered in the doses advocated by me it acts not only photodynamically but also stimulatively-tonicizing and vegetatively-regulatorily. This confers on it high therapeutic importance. As a matter of course, I am compelled to admit that not all of the aforementioned modes of action of hematoporphyrin manifest themselves in every case which is treated with it. If that were the case, the hematoporphyrin treatment would signify perfection, to which no therapy can lay claim. I maintain, merely, that the photodynamic, stimulative-tonic and vegetative-regulatory properties of hematoporphyrin become op-

erative in the majority of the cases in most of the described directions. This does not exclude the existence of individual cases in which only some of the characteristic effects manifest themselves, or that certain facts observed in the majority of the cases cannot be determined (for instance, an influence on the electrolytes and blood sugar, or similar ones). It is therefore incorrect to appraise the effects of the hematoporphyrin therapy on the strength of a few clinically or experimentally determinable facts. On the contrary, it is necessary to take into consideration the totality of the effects which can be expected from the hematoporphyrin therapy, by reason of its photodynamic, stimulative-tonic and vegetative-regulatory action, both at the bedside as well as in the laboratory as far as the latter will allow.

Already in my early publications I pointed out, on the basis of my experience, that the hematoporphyrin treatment is indicated chiefly in the depressive disorders of the manic-depressive domain. Having studied the problem for the past seven years and familiarized myself with the observations of other authors, I am now able to maintain this view to its full extent and to expand it by stating that, not only severe and very severe forms of endogenous disturbances, but also the milder forms, are favorably influenced by the treatment. On the other hand, I believe that exogenously conditioned depressions will respond to the treatment only if endogenous factors participate, though but slightly, in the disease picture. The hematoporphyrin treatment is not suitable as a causal therapy for the depressive phases of schizophrenic psychoses, which probably have quite a different etiologic basis. Notwithstanding this, it is possible to influence favorably the depressive affect, general somatic condition and functional vegetative disturbances in some of the cases. On the other hand, the hematoporphyrin treatment acts favorably in conditions which have been specified by Vinchon, Andre and Cimbal. The excellent results which the French authors achieved in those cases which, in their view, are conditioned by vegetative-dystonic and particularly by vagotonic factors, are to be explained chiefly by the vegetative-regulatory action of hematoporphyrin (for instance, hayfever, migraine, asthma). Cimbal stresses the stimulative-tonicizing action of hematoporphyrin, and he treated mentally depressed juvenile patients with correspondingly smaller oral doses with favor-

able results. He also obtained good results in attempts to increase the capacity of children and juveniles, for instance during examinations, school hours and other transiently heightened demands.

The researches of Vinchon, Andre and Cimbal furnish new fields for the use of hematoporphyrin, though I fully realize that proper conservatism is desirable in endeavoring to extend the indications. However, having regard to the therapeutic properties of hematoporphyrin, I think that the findings of these authors should be subjected to further study. I believe, also, that research in this direction should prove particularly interesting and attractive because it may possibly yield a deeper insight into the mode of action of the hematoporphyrin therapy.

I have so often dealt with the strength of the hematoporphyrin solution which I employ, as well as with the dosage and method of administration, that I may here confine myself to a few hints. The dosage which was proposed by me and which varied according to the severity of the individual case, has been found suitable also by other authors. Although a few observers (Andre, Bianchini) believe that larger doses of hematoporphyrin may be given safely, I do not recommend increasing the customary dosage because the latter assures the avoidance of injurious effects with the greatest certainty. But it would be equally wrong to employ underdosage from a wholly unfounded fear of toxic effects. This applies particularly to the severe and very severe forms of melancholic disorders which require simultaneous oral and parenteral medication. The unfavorable results which have been reported by some authors, for instance by Steinberg, in severe melancholias are in my view ascribable partly to underdosage of hematoporphyrin in the patients in question. I regard the hematoporphyrin treatment as contraindicated only in the presence of severe, acute febrile conditions or organic liver affections. In other diseases, even of a more serious nature, such as pulmonary tuberculosis, myodegeneration of the cord, nephrosis and arteriosclerosis, I have never observed an exacerbation of the bodily condition under cautious oral administration, which could be referred to hematoporphyrin. On the contrary, I found improvement of general condition in some cases.

A summary of the results of the hematoporphyrin therapy which takes into account only those authors who reported the number of treated cases and the degree of the improvement, shows that

up to the present about 400 cases (including my own and those reported by the American authors) have been described. Among them are 327 consisting for the most part of severe forms of melancholia and endogenous depression. Of these 327 cases 98 were distinctly improved, 162 cured or greatly improved, while only 67 remained entirely uninfluenced.

Of the 25 authors who investigated my observations, only Notkin and his associates and Steinberg obtained negative results. As regards Notkin's cases it should be borne in mind that one-half of the patients were schizophrenics; in the involutional melancholias however the treatment achieved a strikingly favorable influence on the red blood picture and bodyweight, besides psychic improvement in a few cases. In relation to Steinberg's findings, I believe that this author would have obtained better results had he employed larger doses of hematoporphyrin in his severe and partly diagnostically uncertain cases. All other authors however confirm my own observations. The majority of them observed the same characteristic clinical effects of the hematoporphyrin therapy as I did. Improvement first manifests itself on the somatic-vegetative side of the disease picture and subsequently extends to the psychic field, in which the inhibitory symptom usually disappears first. These authors therefore agree with me in thinking that the possibility of spontaneous remissions may be excluded and that it is obviously permissible to ascribe to hematoporphyrin a specific influence on the melancholic and depressive conditions.

According to my experience, which has been confirmed by other authors in the interval, those melancholias and depressions whose disease picture is dominated by the symptom of inhibition respond best to the treatment. Among the patients who are influenced only slightly or not at all, are to be found mostly cases in which marked anxiety complexes and lively hallucinatory elements predominate. This agrees also with the results of the treatment in involutional melancholias, which often include agitated and anxious patients. Of the 67 cases included in the 327 previously mentioned, one-third failed to respond to the therapy, that is, a considerably higher percentage of this type failed to respond than of the other forms of depression. In order to render the hematoporphyrin therapy still more efficacious it will be necessary therefore to attain a more exact demarcation of melancholic and depressive conditions, as has been justly emphasized by Schwarz. On the other hand, I have

found that some patients improved quite suddenly following brief treatment, while the majority improved more slowly (in about 10-14 days); in rare cases the improvement was still slower or only a few symptoms were influenced. Herein pathophysiologic processes, which are probably intimately related to the porphyrins, may be assumed to play an essential rôle. If these relationships could be clarified, it might be possible to render the cases which are now resistant toward hematoporphyrin amenable to the therapy.

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CONCERNING SCHIZOPHRENIA AND MANIC-DEPRESSIVE PSYCHOSIS ASSOCIATED WITH PREGNANCY AND CHILDBIRTH.

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It is perhaps safe to assume that one woman out of a thousand shows evidence of some mental disturbance during pregnancy or following childbirth. While it is difficult to estimate the number of those who develop psychoses, it is possible to say that two to three women out of each thousand admitted to a hospital for mental disease show the onset of psychosis to be associated with the generative process.

The mental reactions that such patients may show are variable. The present study concerns itself with schizophrenia and manic-depressive psychosis as related to the stated epochs of womanhood.

While psychological research has contributed greatly to the understanding of the problem, we believe that the physiology has been insufficiently studied. A better understanding of the latter is demanded by the concept of the unity of functions of the individual since it is obvious that the enormous psychological and physiological changes and readjustments which are going on in the person during pregnancy and childbirth must be influenced by each other.

From the extensive literature dealing with the post-partum psychoses I shall mention only the following authors who have recently discussed the problem and who have also reviewed the literature.

Zilboorg approached the problem from a psychoanalytic angle and evaluated the sex life of the patients. In his cases he found faulty heterosexual adjustment to be outstanding. Masturbation, frigidity, late marriages, etc., were constant features. The mental content of such cases he found to be predominantly one of rejection of the marital situation which can be interpreted as a manifestation of homosexuality.

Anderson investigated a number of puerperal psychoses and a number of similar cases not associated with childbirth. He found

that in both groups the majority claimed satisfactory sexual adjustment, in fact marital unhappiness was more frequent in the control group. No material difference was revealed in the pre-psychotic sexual life in both groups. He concluded that there is no evidence that the psychoses associated with childbirth are necessarily due to the factors brought out by Zilboorg, and denies that the puerperium acts as a specific precipitating factor.

Frumkes working with the material of Manhattan State Hospital found that there is no difference between post-partum schizophrenia and manic-depressive psychosis and the same psychoses otherwise developed. He approached the subject from the viewpoint of Zilboorg with whom he is in agreement concerning the dynamics of the situation.

These authors have investigated the problem from a descriptive, interpretative or "symptomatic" angle. We shall attempt to examine it from a broader standpoint, namely that of the total personality, emphasizing the degree of harmony or integration and unity of functions achieved by the person and its relation to psychotic manifestations arising under stress of pregnancy and childbirth.

Our Material.

A large number of post-partum cases were observed over a period of several years of whom 30 cases of schizophrenia and 30 cases of manic-depressive psychosis were studied. These cases were free from any demonstrable physical disease and there was no history or evidence of toxic, infectious or exhaustive factors. Some had previous hospital residences. Their ages ranged from 18 to 39 years. The study was concerned with the following items:

I. Immediate data:
   a. Primapara or multipara.
   b. Mode of onset of psychosis.
II. Personality data:
   a. Total affectivity.
   b. Sex impulse.
   c. Maternal impulse.
   d. Inter-sexual conditions.
III. Mental content.
IV. Pathological data.

Since psychiatric terminology is still in want of exactness of expression, a few words seem necessary to denote what we understand as the meaning of some of the above mentioned items. From a biological viewpoint, total affectivity in its rudimentary form must be identified with the " mental component " of the cell, the original irritability. It must conform to the same laws of integration as the nervous system and be concomitant with the character of the total personality, its development being a result of evolutionary adaptation of the protoplasm organized by experience. It passes from simple sensory impressions and perceptions to capacity for abstract imagery, creating a tendency to prefer values of certain coloring which influence and even condition the individual gnosis and praxis.

Impulse is only part of total affectivity. It is humoral or biochemical in its source, bound up with endocrine, autonomic and psychic activity which flows over into the associational and motor functions. (Kretschmer.)

The question of inter-sexual conditions, we take in the sense of Maranon, namely that the masculine and the feminine are not two diametrically opposed entities but successive degrees of the development of a single function, that of sex. There is a peculiarity that the functional disturbance is much more intense than the anatomic, and that along with organic inter-sexuality there is also an affective inter-sexuality. Maranon also warns not to confuse inter-sexuality with homosexuality and misinterpret findings of modern biology in an off-hand opinion that all men are more or less homosexual.

The following cases illustrate:

CASE 1.—Jewish woman, age 31, came to the U. S. at the age of seven. Early development believed normal. No particular attachments known. She received an average education and worked efficiently as a stenographer. She is described as a person rather reserved, strong-headed with strong likes and dislikes, ambitious and strong in her appetities. At the age of 22 she had an automobile accident. Two weeks later she became depressed and entertained suicidal ideas. She recovered in about three weeks at home. About one year later the patient fell in love and married secretly. Marriage was a failure; her husband treated her brutally. She promptly became pregnant and following delivery became depressed and sleepless and would not eat or talk. She recovered in about three months. She remained fairly well adjusted for about two years when she delivered a second baby. Again following childbirth the patient became depressed, self-accusatory. This condition alternated with

excitement of a manic character. She recovered in about one year, and remained well for some four years when she developed another state of depression, was suicidal and had to be hospitalized. She remained in the hospital for four years until her death, having had typical, alternating phases of manic excitement and depression.

This patient showed masculine features in her make-up. She had male distribution of hair and was of asthenic build. Sexual impulse was of masculine order prompted by orgasm. Maternal impulse apparently very low. Her affect and impulse were in harmony. She had a previous attack before marriage precipitated by trauma. Both post-partum psychoses were of a manic-depressive nature.

CASE 2.—Puerto-Rican woman, age 28. There was a history of mental trouble on the maternal side. Early environment was unfavorable. Parents did not get along and finally separated when patient was very young. She grew up to be a seclusive, very sensitive and jealous individual, was ambitious and had superior cravings. She completed a nurse's training course and occupied herself in this line. At the age of 20 patient had an illegitimate child and shortly after this her paramour married, following which she came to New York. While here patient married and her husband died shortly afterward. She remarried a man much inferior to herself. She had with this man three children. She did not stand pregnancies well, would show mental traits, would be very jealous of her husband for whom she did not ordinarily care, was uneasy and nervous about the child and would be fearful. Pregnancies had to be interrupted except the present one. The present pregnancy was of the same character. In the final stage patient began to express fear over the child and the future, was worried, became agitated and finally developed ideas of persecution. In the hospital she evidenced extreme agitation and admitted this to be due to hallucinations. She was afraid of being killed and attempted suicide. She heard voices telling her her children were dead, that she and her husband were dead. Her sensorium was clear. Following the acute excitement she became mute, apathetic and inactive. She has remained hallucinated and unimproved.

This case was diagnosed dementia præcox, paranoid. She was morphologically a well-equipped woman. Her maternal impulse was only moderately strong, sex impulse rather strong and affectivity unstable. She had no use for her husband whom she considered inferior. Her difficulties would usually set in during the final stage of pregnancy.

CASE 3.—Spanish woman, age 32. Early development uneventful, average education, domestic by occupation. No history of diseases, injuries and toxic

influences. Described as temperamental, reserved, sensitive and religious. Married for the first time at 18. Had one child and separated from her husband because of his unfaithfulness. At 27 remarried. Was frigid but had great desire for children. During last pregnancy showed mild toxic symptoms. One week following a normal delivery she became depressed and expressed a wish to die. In the hospital she was agitated, depressed, hopeless in her mood; she had ideas of guilt and believed she had an incurable disease. Her sensorium was clear.

The case was diagnosed manic-depressive psychosis, mixed type. It showed all the ear-marks of an involutional psychosis. Outstanding personality feature was discrepancy between various impulses. While patient was frigid she had a strong maternal impulse. Morphologically she was a hypoplastic individual.

CASE 4.—Irish woman, 34 years old. Her mother died when the patient was four years old. She formed a strong attachment for her father. She had some schooling but was considered dull. She, however, was efficient at her work later and held well remunerative positions. She married at the age of 19 and marital adjustment was good. She is described as a sociable, friendly person, a devoted wife and mother. Five days following her first childbirth she became elated, over-active, talked in a flighty manner and expressed grandiose ideas. She had an idea of getting another child. She was considered a case of manic-depressive psychosis and made a rapid recovery. Ten years later she was readmitted with a history that she had been well adjusted, had had two more children, one of whom was crippled and the other had died. One month previous to admission her father died. She became depressed, expressed a wish to die, was self-accusatory, blaming herself for her child's death and for having a crippled child, was suicidal. She made another perfect recovery.

The case showed a rather pronounced maternal impulse. She wanted a larger family but was afraid to have more children. Her affect was in harmony with impulse life. She had no psychosis following subsequent childbirths but developed one following death of father to whom she was quite attached. Morphologically she was a well-developed woman.

CASE 5.—Woman aged 39, born in the U. S. She was the only child and was brought up in a rather religious atmosphere. She was left an orphan at the age of ten and was further brought up by an aunt to whom she was quite attached. She had an average education following which she worked at domestic positions. Striking temperamental traits were sensitivity and sentimentality. She had no relations with the opposite sex until she met her husband. She became pregnant prior to marriage and upon the insistence of her husband had an abortion performed. Later they married legally and she

gave birth to two children. Following first childbirth her disposition changed. She became irritable, suspicious, emotionally unstable. Shortly after each childbirth she would express hostility toward her husband and would have suicidal thoughts and feelings of injuring her children. She never fully recovered but was not hospitalized. Six months previous to admission her condition grew worse. She became depressed, agitated, entertained pronounced ideas of killing herself, her children and her husband. In the hospital she was considerably depressed, had suicidal ideas, ideas that people were passing remarks that her husband was dead, dreamt that her children were being attacked and had a vision of the Lord who promised her guidance. Her sensorium was clear. She remained unimproved for some six months and later made a good recovery.

This patient was morphologically a fairly well-developed woman. Her affect was strongly selective and in harmony with impulse life. At the time of admission she gave evidence of going through the climacterium. Mental manifestations appeared after each pregnancy and at the beginning of the involution period. Her hostility toward the husband was partly the result of affective polarization dating back to the event of abortion which was of great significance to the patient, causing religious conflict. The ideation referable to suicide and infanticide we shall discuss later. She recovered following administration of 600 units of theelin.

Case 6.—Jewish woman born in the U. S., age 31. Had an older sister who developed a transitory psychosis following an operation. Patient's early development is unknown but is believed to have been normal. She received an average education following which she worked in a dress factory. She was a reserved person, egotistical and sentimental, having cravings for superior things. She married at 17 but had no affection for her husband. She was frigid and marital life was not happy. She had a desire for a child but did not have any for several years. After childbirth, coming home from the hospital, she woke up at night after having a dream that her husband was killed. She went into a state of excitement. She continued so, later worried considerably and had a fear of injuring her child and herself. In the hospital she was in a catatonic state and made suicidal moves. After about one year of hospital residence she improved sufficiently to be allowed to go home.

This patient was of an asthentic type with suggestion of thyroid deficiency and considerable evidence of an inter-sexual condition. Affect was cool, sexual impulse low, maternal impulse insecure. Of interest is the relation of dream activity overlapping into consciousness, which is not infrequently met at the time of onset of psychosis. The ideation will be discussed later. She improved

after administration of 1000 units of antuitrin-S and 1200 units of theelin.

CASE 7.—Colored woman, aged 28. Had an uneventful childhood as far as known. Received an average education following which she occupied herself in domestic lines. She is described as a sociable person, quite active and determined. She had no relations with the opposite sex until her marriage at 25. Husband was a rather submissive, effeminate type. Marital situation was satisfactory, patient being the leader. She became pregnant promptly and had a baby at full term. During pregnancy she was nervous and unstable. Following childbirth she was unstable, depressed, was fearful for the child and hostile toward her husband, but recovered in a short time. Three months before admission she had a miscarriage following which she became again unbalanced, became suspicious and developed ideas of poisoning. In the hospital she was abstractedly happy, denied her marriage and expressed the idea that no man could have her. She made frank homosexual moves toward other patients. She recovered after about six months of hospital residence.

This patient presented an athletic type. Her affect and impulse were of masculine order, as is seen in the choice of husband and expression of sexual impulse. Her homosexual assaults during her psychosis would suggest strong inter-sexual tendencies. She recovered following administration of 1200 units of theelin.

CASE 8.—Female, aged 23. Dysplastic habitus. Showed obesity of pituitary type. Described as egotistical, asocial and unstable. Married against advice of her family out of her race and religion. Marital adjustment was poor. She did not want to have any children. After about three years of married life she became pregnant, was quite upset about it but later became over-enthusiastic. Eleven days post-partum she became excited and restless, imagined her child might be injured or infected. Her agitation increased. In the hospital she showed an extreme catatonic state. She died three days following admission. Cause of death believed to be due to exhaustion following excitement. Autopsy findings: brain was unusually large, 1443 gms., markedly congested, edematous, making appearance of acute swelling. Heart showed fatty myocardium, coronaries small. Aorta small, hardly admitting index finger. Lungs, liver, pancreas, spleen and kidneys engorged. Sex organs showed no sign of infection, uterus partially involuted, pituitary very large, 0.9 gms. Ovaries very large. Microscopically, spleen found hemorrhagic, organ appeared broken down, cells being held loosely together. Liver, cells swollen, cytoplasm broken down. Areas of marked acute degeneration. Thymus showed islands of persistent and probably active tissue. Pituitary markedly hyperæmic and marked diminution of eosin-staining cells. Ovaries extremely congested. Considerable fibrosis present. Numerous cysts some of which suggestive for remains of corpus luteum, other cysts of unknown origin. Very few rudimentary graafian follicules.

CASE 9.—Female, aged 29, Athletic type. Described as a good mixer, quite active, activity being of masculine order. Married one year. Marital adjustment believed good. Two days following delivery she became excited, expressed ideas that she was to be killed, that somebody is going to kill her child and husband. In the hospital was in a pronounced catatonic state. She died after about two and a half months of residence. Cause of death was not very clear, chronic nephritis suspected. Autopsy findings: heart and aorta normal. Lungs congested. Liver increased in weight and resistance. Spleen and kidneys markedly congested. Many small petechial hemorrhages. Brain very congested and edematous. The blood vessels of brain showed arteriosclerotic changes. Microscopically lungs showed hemorrhagic condition in some places. Spleen was hemorrhagic. Pituitary negative. Ovaries very congested, sclerotic changes of vessels. There were numerous cysts throughout, apparently of corpus luteum origin. Primitive graafian follicules sparse.

Cases 8 and 9 showed the same immediate and personality data as the other cases. The pathological findings will be discussed later.

SUMMARY.

The results of the investigation may be thus summarized:

I. Concerning immediate data we find that among the 60 cases there were 33 primaparas and 27 multiparas. There were eight cases associated with pregnancy and in 52 psychoses followed childbirth. The onset of psychosis during pregnancy was found to be gradual, characterized by instability, unrest, mild anxiety, depressive mood with swing to elation, usually accompanied by insomnia and sometimes by headaches. In the post-partum psychoses the onset was rather sudden. In the majority of cases it would begin with excitement, in others with depression. The usual onset was between the first and fourteenth day. It was quite characteristic that the onset was related to the time of the patient's return home from the hospital, which was usually the tenth or twelfth day post-partum. At any rate the psychosis manifested itself during sub-involution, a point which, as will be seen later, is of importance. In case the onset was later there were prodormal signs during sub-involution. In the beginning there was very often a somatic element present, the more pronounced the closer the onset was to delivery.

II. Personality data can be tabulated as follows:

	Schizophrenia	Manic-depressive psychosis
a. Total affectivity:		
Strongly differentiated	6	16
Diffuse	10	5
Ambivalent	5	9
Cool	9	0
b. Sex impulse:		
Strongly selective	6	13
Diffuse	11	10
Insecure	9	6
Frigid	4	1
c. Material impulse:		
Strong	6	12
Weak	11	6
Passive	8	8
Absent	5	4
d. Inter-sexual conditions	9	14

In the manic-depressive group there is often a history of a previous attack and there are cases which show a manic state of affairs during each pregnancy or after each childbirth. In the majority of cases the total affectivity and impulse-life are harmoniously integrated. Manifested affect whether elation or irritability is evenly distributed, everything pleases or irritates the patient, there is no exclusive investment of affect, but rather pathological accentuation.

In schizophrenia the situation is quite different. There is obvious discord in integration of affectivity and impulse. We often meet, for instance, an insecure impulse and differentiated affectivity which may result in deceptive outward manifestations; for example, shyness and seclusiveness often harbors a rather strongly differentiated impulse. Moreover affectivity is not flexible, often exclusively and unmovably invested, and dissociation is present.

Our findings concerning pre-psychotic sexual life such as frigidity are confirmatory to the findings of Anderson. While frigidity may be present, it is not particularly prominent. The age of marriage of our patients was between the ages of 16-28.

Intersexual conditions were present in both groups. Again it is differently expressed in the two groups. If we consider the sexual

impulse as a certain form of energy originally released by a biochemical, hormonal principle and evoluting into a force of infinite organic and psychological complexity, we find that the psychological component plays a greater rôle in the manic-depressive cases than in schizophrenia. On the other hand, impulse is of greater significance in the schizophrenic. Male distribution of bodily hair which is associated often with genital hypoplasia and dysplasia are more conspicuous in schizophrenia. In the manic case a very interesting feature is the outline of hair of the fronto-parietal region which has the masculine convex form, and which is quite pronounced. Activity is often of masculine order, the voice may also have a male character in the manic.

III. Mental content. The ideation in the manic state is the usual one. The patient usually betrays her aspirations and solves them in a grandiose manner, for instance, a patient who is very fond of children expresed the idea that she is going to have more children and immediately. In case of rejection of the husband the cause is very easy to trace and is referrable to social or biological inferiority of the husband; for example, a patient who had superior cravings and whose husband was inferior to her in both aspects, spoke in her psychosis of marrying the Prince of Wales. They may sometimes deny marriage, but there is no such absurd compensation as in the schizophrenic. No infanticide ideas were met in the manic state but such ideas are not infrequent in depression. We shall discuss this point presently; the depressive phase offers otherwise the usual syndrome.

The ideation of the schizophrenic is differently expressed. We are interested for the present in the question of rejection of the marital situation. The denial of the latter may assume a bizarre form, and its expression is a matter of degree. From simple hostility it may progress to ideas of virginity and further to identification with the Holy Virgin. Ideas of infanticide are common. Here we can trace at least two ways of their construction. In certain schizophrenics and in the depressed phase our findings are confirmatory to those of Hopwood. We find the primary idea to be suicide, which overflows and may enclose husband and child. (We have discussed the possible mechanism of suicide in another study.) In cases of this type infanticide seems to be prompted by the affect of sorrow for the fate of the family. It is of interest

that in the pre-psychotic personality of such patients we find sentimentality to be an outstanding trait. In other cases infanticide must be regarded as a projective expression, and belongs primarily to the domain of impulse. The projection is also a matter of degree. It may involve child, husband and may progress to ideas of world destruction. In certain cases of catatonia when the extreme excitement or stupor subsides the patient may have no recollection of her previous ideation (such amnesia being often unjustifiably doubted). This seems to go with White's interpretation of catatonia on psychological lines when he states that the catatonic endeavors to shut out from consciousness his conflict by a supreme effort of repression. Biologically we like to interpret this as a vigorous effort on the part of the auto-regulation of functions ("biological conscience," von Monakov) to restore balance.

IV. Pathological data. In conjunction with our other work we have reason to believe that certain autopsy findings are of considerable importance for our problem. We wish to call attention to the damage to the reticulo-endothel which is quite pronounced and to ovarian changes. The latter have shown considerable damage. The changes suggested circulatory disturbance which obviously must impair nutrition and consequently secretion, with luteinization and conspicuous reduction of graafian follicules. We shall discuss these findings in conjunction with otherwise well established physiological changes which occur during pregnancy.

Comments.

With the foregoing in mind we shall now examine the significance, if any, of the data obtained in the course of our investigation. Here again we like to point out that in order to understand the mechanism of dissolution of the total personality we must understand its evolution and the ways of maintenance of its balance. To be sure a great deal has yet to be learned, still it seems obvious that in all these conditions multiple factors are at work, factors which are closely interwoven and interactive. An important factor in "maintenance" is the system of defense of the individual. This system expresses itself from simple reflex to rather complex humoral and cellular activity. Clinically, therefore, it is essential to investigate this dissolution, step by step all along its development, in both psychological and physiological fields.

Bleuler has convincingly discussed the significance of psychogenesis and physiogenesis in schizophrenia. While there may be no doubt about it, we have no possibility as yet to identify mental manifestations as arising from specific physiological mechanisms nor do we believe this to be exactly the case. However, considerable abnormalities in various functions of the schizophrenic are recorded by all workers on the problem. It is true that the findings are non-specific and inconstant, still they may justify the opinion that we deal in this psychosis with altered bio-chemical states of the organism. We are unable to estimate such changes but due to the fact that the primary integration of the organism is physico-chemical which combines itself very early in embryonic life with the nervous system upon which in turn the psychical function is constructed and oriented, it is significant. We wish to emphasize, however, that the psyche, which has its roots in the entire structure of the total personality (see our definition of the latter in a former study), is necessarily wider than neurophysiologic processes. The latter are only a part of the whole, a part by means of which adjustments and execution are accomplished. A disturbance of these neurophysiologic processes will involve but not solely constitute psychical disturbance. We may say that affectivity, for instance, once organized may lead to sensation. Defining emotion as the motor expression of affectivity we may say that the emotive adaptation of the person will be conditioned by fixity of psychobiological reflexes and by variability of neuro-humoral equilibrium. The latter is concomitant with the colloidal state and metabolism of the neuron protoplasm. For proper maintenance of such equilibrium continuous impregnation of the nervous tissue with vital biologicals is necessary. Faulty impregnation will result in imbalance, in its extreme, being able to cause even abeyance of biological reflexes. Confirmatory to such a viewpoint would be the well-known experiments of Steinach concerning the so-called "erotization" of the brain of castrated animals by means of impregnation of the brain with gonadal hormone. What is true about the sex hormone is also true about other increts. For instance, in hyperthyroid conditions we have definite quickening of psychic processes while in the opposite case we find mental dullness and inertia.

We know also that the pituitary during pregnancy is hyperactive, considerable quantities of prolan, predominantly the luteinizing principle, are eliminated in the urine. According to the experiments of Zondek excessive formation of prolan may lead to hyperluteinization of the ovaries. On the other hand Steinach has shown (quoted by Maranon) that hyperluteinization virilizes the female. Again if we evaluate the situation during menstruation we see that in the premenstrual period there is hyperthyroidism, hyperpituitarism and hyperluteinism; at the same time we may observe that certain women are especially paranoid toward men during this time, which may be due to these changes which may cause or augment the affective constellation of certain women.

In our autopsied cases we found among other things considerable evidence of luteinization of the ovaries, diminution of formation of graafian follicules and fibrosis. These changes together with circulatory disturbance and cystic formation have obviously rendered the ovaries inferior; and we may conclude that the ovarian changes may have had considerable bearing upon the mental state of the patients.

The question arises, however, why in certain individuals such changes occur while in others, *i. e.*, in normal conditions, in which there is also abundance of prolan production and elimination in the urine during pregnancy, no damage is done. It must be stated that nothing is known about it. However, let us compare the situation with conditions at another phase of womanhood, namely involution. In the urine of involuting women we find the follicular ripening hormone; still no ripening of graafian follicules occurs. The only explanation I would have is that there is no "receptivity" for the hormone because the biological function has ceased. The ovaries at this period of life begin to atrophy. The stituation in certain cases of pregnancy can also be explained by the principle of "receptivity." The healthy state is not receptive to a larger quantity of prolan than necessary while in biologically inferior states the receptivity is pathological, as the situation is presumably in our cases. On the other hand, we know from therapeutic tests that there are conditions of apparently deficient receptivity and insufficient formation of corpus luteum which may lead to miscarriages. Treatment of such cases with corpus luteum prevents miscarriages.

Next we shall discuss certain aspects of thyroid activity. It is well known that in the majority of cases of pregnancy we have thyroid over-activity, although the opposite is also met with. We know the influence of the thyroid gland upon metabolism which does not require special comment. There is, however, an item of interest. Since the lipoid metabolism in pregnancy is greatly disturbed, we wish to call attention to a recent contribution by Duncan concerning the relationship of cholesterol metabolism to mental disorder. He brings out the fact that diminished blood cholesterol will produce increased neuronic excitability, while raised blood cholesterol will produce the opposite effect. He observes that in this relationship some parallel can be drawn with thyroid activity, since increased thyroid activity decreases blood cholesterol and causes increased neuronic excitability and vice versa. To this we should like to add that the cholesterol metabolism is dependent upon the function of the reticulo-endothel. With reference to the latter, Benda has shown that during the first half of pregnancy the capillary endothel is unimpaired. In the second half, the capillary permeability is increased. It reaches its maximum in eclampsia when the reticulo-endothel is greatly damaged. In normal conditions it subsides during the puerperal state.

Our findings with reference to the mode of onset of post-partum psychoses as related, as well as our other work on the reticulo-endothel convinced us of the importance of this system in the release of these psychoses. Moreover, the findings in the autopsied cases show considerable evidence of damage to the reticulo-endothel. It is this system that we regard as an outstanding factor in the defense of the individual and in the maintenance of equilibrium.

Other changes during pregnancy such as the increase of catabolic products in the blood, leucocytosis and shifting of pH to the acid side are in line with the views outlined above.

Conclusions.

In conclusion we wish to emphasize the following points:

There are certain differences in the clinical manifestations of post-partum schizophrenia and manic-depressive psychosis as compared with the same syndromes otherwise. At the onset there is a

somatic element present which often renders diagnosis difficult. After the respective syndromes crystallize themselves out there is no essential difference in the clinical reaction. The prognosis of post-partum schizophrenia is however better than in the usual forms, and this seems to be because catatonic reactions are predominant. No true hebephrenia or simple deterioration has as yet been observed by the writer.

Multiple factors are apparently at work in the release of these psychoses, among which we distinguish, (a) those belonging to evolution and integration of the total personality and primarily expressed in discord of integration or tendency to polarization of affect and impulse, and resulting in mental conflict; (b) those belonging to maintenance of balance and the defense system of the personality, manifested in neuro-endocrine and metabolic changes and reticulo-endothelal dysfunction; (c) precipitating and aggravating factors (pregnancy, childbirth and other experiences occurring during these times).

The fact that a psychosis may occur after the first childbirth only, or in succesive childbirths, or in multiparas who have had no complications at former parturitions, suggests that the combined action of the above-mentioned factors may cause states of crises of impulse life or affectivity or both. Referring for example to the sexual impulse, experimental endocrinology in conjunction with our findings as to ovarian changes, suggests that such changes may be instrumental in creating a state of sexual crisis, *i. e.*, transitory or permanent stages of accentuation of dormant affective or organic inter-sexuality or virilization of the female which may manifest itself in rejection of the marital and family situation (this ideation although conspicuous in post-partum psychoses is not specific since it is met in other mental states, suggesting similar conditions in those cases) or cause a crisis of total affectivity with the release of other conflicts of the individual.

Treatment: The acute case requires medical, dietary and nursing care. Excitement responds well to continuous bath treatment with subsequent application of occupational therapy. Treatment otherwise is largely symptomatic and when practicable psychotherapeutic. It is essential that the patient gain insight into her difficulties. It is also necessary that the family have insight into the condition. In certain cases, birth control must be considered with

due respect to the religious belief of the patient, and warning against abortions and miscarriages because the latter may produce the same complications. In view of the limitations of such therapy and with consideration of the findings in our cases we attempted whenever it appeared indicated and feasible to treat the patient also endocrinologically. We used theelin, sometimes in combination with antuitrin-S or thyroid. The dosage and proper administration are based upon recognition of the hormonal imbalance and upon clinical observation of the patient's reaction; thus treatment becomes individual and partly a therapeutic test. Treatment was given to milder cases of schizophrenia and depressed and mixed types of manic-depressive psychosis. In depression and apathy, theelin was combined with 1 grain of desiccated thyroid per day. This treatment ought not to be given in acute states of excitement, agitation or anxiety. In view of our limited experience we can draw no definite conclusions except to state that in certain cases it proved beneficial.

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SUICIDE AMONG CIVILIZED AND PRIMITIVE RACES.*

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I.

For the study of any phenomenon a definite emotional adjustment is required, without which no truly scientific observations and conclusions are possible. The chemist who reacts to the odor of chlorine or of various sulphur compounds with a severe sense of disgust is obviously unable to do chemical research with any degree of equanimity or detachment, because wittingly or unwittingly he is in a state of constant anxiety and tries to avoid stumbling upon a reaction in which various sulphur or chlorine gases may be given off. The physician cannot learn to perform a surgical operation unless he overcomes his fear of blood; the medical student will never be able to learn anatomy unless he makes at least a temporary peace with his fear of death. Exceptions are possible, but they occur only in rare instances. How many men today could become productive research workers in experimental physiology and bacteriology, if they, like Pasteur, suffered from a sustained fear of the syringe and the needle? The adjustment required is an *emotional* and not an intellectual one, for no amount of intellectual understanding can overcome fear. Pasteur had as fine an intellectual understanding of the rationality of operative experimental methods as any man could have, yet even he was unable to overcome his emotional tension, *i. e.*, neurotic fears.

An emotional adjustment is particularly necessary for the consideration of psychiatric problems. Our emotional attitude towards many psychopathological questions is so deep-seated, yet so elusive, that at times it escapes the most honest self-scrutiny with the result that the clarity of our scientific understanding is obscured. Therefore any phenomenon the nature of which displays the frailty of human reason must be studied with particular caution. All psychopathological phenomena display this frailty of human reason.

* Read before the Boston Society of Neurology and Psychiatry, Oct. 17, 1935.

As a matter of fact, they seem to be the phenomena which demonstrate *par excellence* little else than the frailty of what is called mind. The organicist, to whom all mental phenomena are but an expression of somatic reactions, takes it for granted, of course, that the human mind is but a delicate cobweb, the threads of which are impaired or destroyed by the smallest quantities of hormones, drugs, physiological waste-products, or minute anatomical accidents. But even the pan-psychologist who asserts the supremacy of the mind over everything else views the frailty of man's reasoning power as something fundamental in that he endeavors to demonstrate that emotions, instinctual drives, and various primitive instinctual constellations are *the* forces which affect our reason and not *vice versa*. In other words, while we profess a great admiration for and pride in our reason, we actually—although indirectly—admit that it is one of the weakest tools in the armamentarium of man's endowments. One must approach such a phenomenon as suicide with the greatest of caution, for any act that opposes the instinct of life is bound to arouse in us a set of reactions which interfere with a clear and purely rational understanding of the phenomenon itself.

These considerations are set forth here not only as a warning to those who are invited to examine some of the questions involved in the act of suicide, but also—if not particularly—as an advance apology for the possible errors in thinking which may be found in my conception of the problem. For I am fully aware of the weaknesses of human reasoning, and no matter how sufficient one may consider one's emotional adjustment to such a puzzling and grave expression of human behavior as suicide, one can never be certain that this adjustment is really complete enough to overcome either one's biological bias in favor of life or one's sombre propensity towards death.

2.

Even a cursory review of the traditional, popular attitude towards suicide at once brings out the confusing contradictions with which the average man regards the subject. Thus, we frequently hear either that it takes great courage to commit suicide or that only a coward would kill himself. It is obvious that both viewpoints are emotional and not rational. He who senses within himself (whether

he is aware of it or not) the constant flow of life—who is biologically aware of all the forces of his individuality surging in the direction of life—*cannot* conceive of the voluntary act of self-destruction as an easy or natural thing, and he imagines it as something that requires unusual moral fibre; hence he concludes that the act of suicide demands great courage. If to this attitude we add a further sentimentalization of the problem and put the question on a purely moral basis, we will then be unable to understand what Achille-Delmas [1] calls " the perversion of the instinct of self-preservation," and the whole act will be rejected as a cowardly affair. In other words: one must live, it is one's duty to live, and hence one has no right to shirk one's duty by fostering one's own death. As is almost always the case with morality that ignores science, what is a natural phenomenon is soon elevated to the height of duty—hence the reasoning that once man lives, his very living becomes an obligation. From here there is but a step to the medieval doctrine of free will which insists that man, no matter how subject to the laws of nature, can always choose freely between good and evil, life and death, health and disease (mental). It is obvious, of course, that the theory of free will, whether overtly propounded or covertly accepted, is a double-edged tool: This same concept of free will might lead to a complete justification of suicide, as it did in the case of the English poet, John Donne, who published in 1644 his *Biathanatos: A declaration of that paradoxe or thesis that selfe-homicide is not so naturally a sinne, that it may never be otherwise.* The survival of this emotional evaluation of the problem on the basis of morality and the philosophy of free will can today be easily detected in divers sects—like Christian Science—or even in traditional, academic psychology. The latter, for instance, is inclined to deny that man may naturally will to kill himself, and it labels every attempt at suicide as something purely pathological, " temporarily insane," or, as we are more prone to say today, psychotic. The same manner of avoiding rather than approaching the problem may be seen in the popular point of view which has also crept into our quasi-scientific, psychological writings and which has never been confirmed or verified—that the rate of suicide increases

[1] Achille-Delmas, F.: Psychologie Pathologique du Suicide. Paris, Felix Alçan, 1932.

with the development of civilization, with economic depressions, and with similar phenomena of a sociological order. Observations such as these also spring from our emotional unwillingness to face an unpleasant fact boldly and hence also the desire to ascribe it to causes external to the individual. Yet a glance at our vital statistics would easily disabuse us as regards the fundamental validity of the contention that economic depressions cause an increase in suicides. In 1912 the number of suicides in the United States was 16.0 per 100,000 population. This rate fluctuated only slightly until the outbreak of the war, when it began to drop and reached its lowest point in 1920, when it was 10.2 per 100,000 population. After 1920 it began to rise, reaching 16.8 in 1931—almost the same level as in 1915. The vital statistics compiled by the Department of Health of Greater New York since 1898 also show a comparatively small fluctuation of the rate per 100,000 population (approximately between 22 and 16), apparently regardless of the economic status of the country. It should be added, however, that although quoted here, statistical data on suicide as they are compiled today deserve little if any credence; it has been repeatedly pointed out by scientific students [2] of the problem that suicide cannot be subject to statistical evaluation, since all too many suicides are not reported as such. Those who kill themselves through automobile accidents are almost never recorded as suicides; those who sustain serious injuries during an attempt to commit suicide and die weeks or months later of these injuries or of intercurrent infections are never registered as suicides; a great many genuine suicides are concealed by families; and suicidal attempts, no matter how serious, never find their way into the tables of vital statistics. It is obvious that under these circumstances the statistical data available cover the smallest and probably the least representative number of suicides; one is justified, therefore, in discarding them as nearly useless in a scientific evaluation of the problem.

To return now to the subject of external causes of suicide: Many a serious student is inclined to follow this pattern rather than the fundamental principle of the natural sciences when he looks for what is frequently called constitutional factors as determinants of

[2] Durkheim, Emile: Le Suicide. Paris, 1897. *Cf.* also Achille-Delmas, *op. cit.*

suicide. Elsewhere [3] I had the opportunity to point out that one does not inherit complexities, but elements; that to elevate to the level of a hereditary characteristic every complex phenomenon of human behavior is equivalent to returning to the psychology of *virtutes* or *faculties,* which had for centuries dubbed every phenomenon which it failed to understand as a special, irreducible faculty of the soul. Obviously, most of these attitudes towards the problem of suicide, whether couched in terms of philosophy, ethics, biology, or psychology, bear the earmarks of man's emotional attitude towards the problem and not of that detached scientific curiosity which is always combined with as impartial a scientific doubt.

3.

Of all the manifestations of this traditional, almost instinctive bias, two are of particular interest to the psychiatrist: I have in mind *first,* the misconception that the rate of suicide increases with the development of our civilization, that in some unknown way civilization fosters suicidal tendencies within us, and, *second,* that suicide is a result of some psychopathological process, that it is intimately connected with some form of mental disease. In other words, it is commonly believed that our civilized human community generates some vague but specific sociological forces which in turn generate suicidal behavior, and also that our civilization breeds psychopathies and that psychopathies breed suicide. It would be difficult, if not impossible, to subject these beliefs to a detailed and critical analysis because of insufficient factual data; there exists, however, some pertinent information which is worth citing. Since we are hardly able to offer any generally acceptable definition or standards for comparison of the various levels of the blessed state called civilization, we are naturally forced to resort to broad comparisons. These are, I believe, sufficiently telling. Let us compare the primitive races with our own in order to avoid any doubt we may have that we are really dealing with a civilization lower than ours, or with a considerable lack of it. Unfortunately, there have been few if any anthropologists and no psychiatrists to my knowledge who have specifically studied the problem of suicide among

[3] Zilboorg, Gregory: The Problem of Constitution in Psychopathology. The Psychoanalytic Quarterly, Vol. III, pp. 339-362, 1934.

primitive peoples. What information we possess on the subject is largely derived from the more or less incidental remarks of interested travelers, missionaries and anthropologists, who mention the problem merely because they happened to stumble on it, so to speak. We have an exception, however, in Steinmetz, one of the most scholarly of our ethnologists, who devoted his special attention to the subject,[4] and after careful study stated: "It seems probable from the data I have been able to collect that there is a greater propensity to suicide among savage than among civilized peoples." To this conclusion one may add that no civilized race of today shows any tendency to deliberate mass suicide, while many primitive races have, at times, demonstrated such a drive towards mass self-destruction that it is totally beyond the comprehension of the civilized individual of today. We may recall in this connection the numerous voluntary deaths of slaves, women, and sometimes male relatives following the loss of their chieftain—a custom spread among primitive races throughout the world which, as far as women are concerned, is still extant here and there in India despite the strenuous efforts of the Imperial Government to eradicate it. We may also recall the many suicides—they reached almost epidemic proportions at times—among various tribes of North American Indians during epidemics of smallpox, or the tragic history of the Spanish conquest of the West Indies. "The history of the Indians of the West Indies following the discovery of America," says Wisse,[5] "is limited primarily to the history of their eradication by the Spaniards. However, as a result of the harsh and cruel treatment at the hands of their oppressors the Indians themselves participated not only passively but often actively in this process of eradication. When the cruelty of the Spaniards became intolerable the natives rid themselves of their lives by mass suicide." These mass suicides are an established historical fact; Friederici states that "under pressure (of Spanish cruelty) whole tribes committed suicide; this fact is proven not only by the testimony of Las Casas, the accuracy of whose statements one might choose to doubt, but also by the testimony of Las Casas' bitter enemy, the historian

[4] Steinmetz, S. R.: Suicide Among Primitive People. American Anthropologist, 1894.

[5] Wisse, J.: Selbstmord und Todesfurcht bei den Naturvölkern. Zutphen, W. J. Thieme und Cie., 1933. p. 207.

Oviedo y Valdes, whose name the bishop never mentions without taking the side of the conquistadores and/or without recriminations against the Indians." [6] These desperate Indians employed many methods and exercised great inventiveness in the business of self-destruction; thus, when caught and imprisoned in the hold of a Spanish ship, they "strangled themselves with the ropes they succeeded in obtaining—this in a squatting or kneeling position, since the room, too small to begin with, was still further reduced in height by the heavy ballast of stones and made regular hanging impossible." [7] Mass suicide was practiced in the Bahamas and according to Perschel [8] among the women of the Antilles: "The women refused to bear children and forwent any carnal pleasures by means of well-known vegetable poisons; but not only were future generations thus deprived of life—the contemporaries themselves cut short their own existence by taking the ever fatal juice of the Manioca plant or by inhaling the fumes of other poisonous plants they were in the habit of burning for the purpose;" [9] they also partook of the poison from the Yuca plant. It is authentically reported that when 40 natives from the Gulf of Mexico were brought by the Spaniards to work in a mine of Emperor Charles V, 39 of them preferred to starve themselves to death. Girolamo Benzoni reported that not less than four thousand men and innumerable women and children died by jumping from high places or by mutual killing of one another.[10] He also states that out of two million original inhabitants of Haiti, hardly 150 individuals were left as a result of many suicides and other deaths.

Some will remember how, in our own day, an attempt at mass suicide through starvation by a group of 1200 miners in Hungary [11] was widely featured in the press throughout the country. It was considered, as it undoubtedly was, a most unusual manifestation of

[6] Friederici, G.: Der Charakter der Entdeck. u. Erober. Amerikas durch die Europäer, I, (1925), p. 299. Also quoted by Wisse, J.: *Op cit.*, p. 207.

[7] Wisse, J.: *Op cit.*, p. 208. Quoting Stoll, Otto: "Suggestion and Hypotism in Race Psychology."

[8] Perschel, O.: Geschichte des Zeitalters der Entdeckungen. 1877. pp. 431-432.

[9] Wisse, J.: *Op. cit.*, p. 208.

[10] Benzoni, Girolamo: The History of the New World. Edited by Rear-Admiral W. H. Smyth, London, 1857. p. 111. Also Wisse, J.: *Op. cit.*, p. 209.

[11] The Associated Press, October 12-17, 1934.

mass protest through a solidarity in death, reminiscent of the mass suicides committed by the Indian Islanders of the Western Hemisphere; but even the similarity of this suicidal threat of a group of Hungarian miners to the more successful attempts of their primitive Indian colleagues of the sixteenth century can hardly lead us to believe that suicide is more or as prevalent in modern civilization.

Evidently the pride we experience in our own civilization is always accompanied by a contrary emotion. We love the day we live in, but we constantly demonstrate an inferential rejection of it when we idealize "the good old days." Similarly, we are always very proud of the achievements of civilized mankind and seldom miss an opportunity to share in their credit, but at the same time we reject this very civilization by imputing to it the malicious force of breeding suicide, mental disease, and other phenomena of negative value. The question as to the origin of this ambivalence of man towards something he himself creates is not in order here, but the well-known emotional (and not rational) roots of ambivalence leave no doubt as to the affective origin of the traditional belief which cannot successfully stand the test of scientific inquiry. Further investigation of this very interesting psycho-sociological aspect of suicide must be left to the future; it was mentioned here merely to illustrate the contradiction between fact and common belief which has crept into our quasi-scientific thinking and assumed the guise of a postulate. We may add that while statistical data are naturally not available, it is evident that even suicide consciously motivated by financial losses is not the monopoly of our monetary-industrial age, since it is known that among the many conscious motivations of suicide in the old Navajo tribes and among Eskimos poverty was not a minor, nor an infrequent, one. Clinical psychiatry and psychopathology, finding more and more points of contact with sociology, may not, of course, overlook the sociological misconception when seeking for a proper scientific approach to the problem of suicide.

4.

Let us now turn to another current misconception—that suicide is caused by mental disease. To avoid digressing too far afield, let us limit ourselves to a brief summary of some of the facts which bear on the subject.

Towards the close of the past century the literature on suicide reached gigantic proportions, and by the end of the first quarter of our present century the bibliography on suicide, as compiled by Rost,[12] occupied a large *in quarto* volume of almost 400 pages. Philosophers (Tissot), sociologists (Durkheim), and psychiatrists (Falret, Brierre de Boismont) have written scholarly and voluminous treatises on the subject, investigating and in some cases putting to a statistical test the contention that suicide and so-called insanity are etiologically related. While no unanimous conclusion was reached, it was clear that although many psychotics commit suicide, suicide is not necessarily connected with or related to psychotic conditions. Durkheim[13] collected a number of very interesting data and pointed out quite convincingly that if it were true that suicide is etiologically connected with psychoses, we should then expect a race yielding a relatively greater number of psychoses also to yield a geater number of suicides. Yet he found the contrary to be true: while the Jews in Prussia, for instance, yielded a greater percentage of mentally sick among their co-religionaries, they fell into the lowest brackets of the statistical tables on suicide; the Prussians, on the other hand, yielding relatively fewer mentally sick, occupied the higher brackets of the same tables. Studying other racial and geographical units of Europe, Durkheim arrived at the same conclusion for each respectively.

A far more intimate relationship was found to exist between suicide and murder. The Italian school of sociologists and Durkheim were considerably impressed with what appears to be an inverse ratio in the occurrence of suicide and homicide. Thus, Catholic countries (Spain, Italy and Ireland) as compared with Protestant, usually show a relatively low rate of suicide and a rather high rate of capital crime: Sicily, for instance, shows a high rate of homicide and a correspondingly lower rate of suicide, while the northern provinces of Italy tend towards more suicides and fewer homicides per given unit of population. The same is true of various departments of continental France; the same relationship between capital crime and self-destruction is seen to exist when we compare

[12] Rost, Hans: Bibliographie des Selbstmords. Augsburg, Haas und Grabherr, 1927.

[13] Durkheim, Emile: *Op. cit.*

the Island of Corsica where murder prevails over suicide, with the French mainland. Evidently the whole problem of suicide is much more complex than traditional psychopathology is wont to think, and transcends in its scope the field of clinical psychiatry proper.

5.

If we turn now to purely clinical observations, we find that the old point of view, according to which depressive psychoses have more or less monopolized the clinical right to commit suicide, requires substantial revision. In an investigation of the clinical diagnostic types of suicide,[14] I endeavored to review a portion of the material studied in Bloomingdale Hospital and later in private practice. Two conclusions were reached with what appears to me a reasonable amount of clinical, empirical justification: *First,* it is not only depressions who commit suicide—hysterias, compulsion neuroses, obsessional neuroses, and some types of schizophrenia all contribute to the toll of self-inflicted death; and, *second,* a careful psychological study of a number of suicidal individuals and katamnestic studies of patients who had succeeded in killing themselves led to the formulation of certain specific diagnostic criteria which permit one both to differentiate various types and to utilize these for prognostic evaluation. It is not necessary to elaborate here on the details of the findings,[15] but a few of the specific conclusions will be cited briefly. It has been found, for instance, that the death of a parent or a sibling during the formative periods of the future suicide (between the ages of four and six, and at puberty) produces a definite predisposition towards suicidal depressions, while compulsion neurotics are apt to commit suicide without warning in a moment of severe psychopathic spite. This spiteful type of suicide is, incidentally, also characteristic of children and adolescents—it is well known that adolescents may at times walk off and kill themselves because " mother forbade them to go to a party " or for some other reason which would seem as trifling. A study of the deeper layers of the unconscious of suicidal patients failed, however, to offer any specific clue to the nature of the suicidal

[14] Zilboorg, Gregory: Differential Diagnostic Types of Suicide. Archives of Neurology and Psychiatry, Vol. 35, pp. 270-291, 1936.

[15] *Ibid.*, for a discussion of these details.

impulse. One may add that while making such a study one is impressed by the universality of the "death drive," although its intensity varies, of course, from the common "I wish I were dead" to the almost elemental impulse to die. Yet despite the universality of this drive and the multiplicity of its gradations there always appears to be something specific about the method the individual chooses for his lethal exodus. I knew, for instance, a patient who made several attempts to commit suicide. For a long time she carried a small loaded revolver in her purse, frequently playing with the idea of shooting herself, but never attempting to do so. Yet she made at least three serious attempts to poison herself by taking immense doses of luminal, and once remained unconscious for almost 72 hours. Another patient chose self-mutilation that led at least on two occasions to an almost fatal loss of blood, despite the fact that many other means for self-destruction were frequently at her disposal. Still another patient, who occasionally thought of taking a poison to which she had easy access, preferred the skyscraper method. One is warranted in concluding that various individuals have specific, for the most part unconscious, psychological reactions which determine the method of suicide, and that this method is, as a rule, of a symbolic nature. While all suicidal methods serve to fulfill the fantasy or gratify the need of entering the state of nothingness, the method itself has a special meaning to the individual. This meaning may not always be clear, but its elemental force and high specialization, as it were, suggests that we are dealing with something more than mere personal symbols as was true in the case of the patient who preferred luminal. Whenever this patient was about to make a serious attempt to end her life, the image of her father would arise in her mind and she would fantasy herself falling gradually asleep. Prolonged and rather deep psychoanalysis disclosed the unique circumstance that the girl had two operations before she was five—one, a tonsillectomy and another, the repair of her nasal septum—and that later, when about ten, she had a third—again a tonsillectomy, since the first proved a failure. In all three operations ether was administered, and in all three it was impossible to induce the child to take the anesthetic until, cradled in her father's arms, the anesthetic could be successfully administered while the child fell gradually asleep on the father's

lap. Evidently these memories, at one time completely forgotten, played a serious rôle in the patient's method of attempting suicide. If we search deep enough and long enough we invariably find in every case a number of such "accidental causes," as the French psychiatrists of a century ago used to say, but the determinants responsible for the universality of the death drive independent of the clinical picture, and for the individual specificity of the method chosen for the act of self-destruction, continue to remain an unsolved puzzle. Clinical psychopathology and sociology—both theoretical and statistical—have failed so far to provide us with an answer; pure reason and logic succeed at times in constructing an answer but, as we have said, it is an answer built on an *emotional* foundation. Apparently biology was never concerned with the specific question of suicide, and therefore it throws little light on the subject, although one cannot easily rid one's self of the suspicion that suicide, *i. e.*, an active turning away from life culminating in death, is not unknown among animals. The dog who, losing his master, goes off by himself, refuses to eat, and is apparently ready to starve himself to death does seem to have something in common with the Eskimo of the seventeenth century who, despondent over the loss of a close relative or over an illness, wandered off alone to build himself a small hut where he could lie down and slowly die of starvation.

The vague suggestion that the suicidal impulse may represent, in part at least, a primordial biological force is neither new nor at first very promising. It is, however, prompted by something more than the simple human propensity towards speculation and might offer us a psychological lead in the right direction. Let us examine a few typical examples: (1) It is traditionally believed that a scorpion when sufficiently irritated pierces himself with his telson; (2) Cervantes, in one of his *Exemplary Novels,* presents a dialogue between two dogs, Scipio and Berganza, in which the former says, "Thus you will have seen (if it has ever come under your notice) that, on the alabaster tombs, on which are represented the figures of those interred in them, when they are husband and wife, a figure of a dog placed between the pair at their feet, in token that in life their affection and fidelity to each other was inviolable;" and to this Berganza replies, in part, "I know that there have been grateful dogs who have cast themselves into the same grave with the

bodies of their deceased masters; others have stood over the graves in which their lords were buried without quitting them or taking food till they died";[16] and (3) Aristotle, in his *History of Animals IX, 47,* states—apparently as a fact—that a certain colt, after refusing several times to serve a particular mare, finally served her, then discovered that it was his own mother and cast himself over a high precipice.

Let us assume that these reports are pure fantasies as they apparently are—even as such they are of great psychological value in so far as they represent, as all fantasies do, the more or less disguised motivation of man conveniently projected into the animal kingdom. These projections deal with anger, spite, and the unwillingness to submit to an outside force (the scorpion); love, fidelity and devotion to the dead (the dog); and incest (the colt). These three motivations present a striking similarity to those found among neuroses and psychoses, among children, and among primitive peoples. The behavior symbolized by our scorpion is illustrated by the suicides of the primitive people at the time of the Spanish conquest and by the self-destruction of the Indians when the white race invaded the continent of North America; the voluntary death of the dogs evidently symbolizes what appears to be the most ancient form of passive suicide, which was first prevalent among women and slaves at the death of their masters; the Aristotelian colt is highly reminiscent of Malinowski's observations concerning the Trobriand Islanders among whom (as is also the case among many other races) suicide is frequently the direct result of an incestuous transgression.[17]

There is one more motivation which should be mentioned for the sake of greater completeness. Though apparently not a primary one, it is a socialized (and therefore less primitive) modification of the scorpion's reaction which, for want of a better term, we may dub the hara-kiri type. It is well known that the offended Japanese commits hara-kiri at the door-step of his offender who in

[16] Cervantes Saavedra, Miguel de: *Exemplary Novels,* trans. by Walter K. Kelly. London, Bohn, 1855. p. 125.

[17] Malinowski, Bronislaw: Crime and Custom in Savage Society, London, Kegan Paul, 1926. Also his Sex and Repression in Savage Society. London, Trench, Trübner & Co., 1927.

turn is subjected by the community to social disfavor. It would appear that this form of suicide is a very ancient one. The Papuan commits suicide at the least possible provocation; even a remark about his appearance, if he interprets it as a derogatory one, immediately leads him to kill himself. The hara-kiri type of self-destruction, however, has an additional feature: he who is offended does not try to avenge himself by directly punishing the offender, but in destroying himself he delegates to the community the rôle of the avenger. Suicide here serves as a substitute for murder or for any milder penalty the right to which is relegated to society. This type of complex socialization of the impulse to kill is met with among a number of primitive races. Malinowski [18] relates the case of a young man, Kima'i, who had a secret love affair with his cousin. Some of the tribesmen suspected Kima'i of the transgression, but preferred to close their eyes to the situation. However, when a young man from the neighborhood boldly accused Kima'i of having an affair with the girl, Kima'i put on his ceremonial clothes, announced to his tribe the reason for the forthcoming step, and in the presence of the entire population of the village climbed up a palm tree, named his offender, and jumped from the tree to his death. Immediately, even before the funeral ceremonies for Kima'i were completed, a battle ensued between the population of Kima'i's village and that of his offender. It appears reasonable to assume that in this case, as in the case of the ancient hara-kiri, suicide is not the primary and direct result of the offense; it is rather a socialized adaptation of a primary form of suicide out of spite for revenge. But since this type of suicide belongs to a more complex form of culture—is, therefore, not a primary one—we shall not dwell longer on it here.

Yet another form of the seemingly spontaneous and elemental impulse to die is found among alcoholics and drug addicts who, while under the strong influence of alcohol or drugs, suddenly lay their hands on themselves and die. A parallel to this form of suicide, if not its prototype, is found among many primitive races. To cite but one example: The Malalis in Brazil [19] are given to fits

[18] *Ibid.*

[19] Wisse, J.: *Op. cit.* Quoting from De St. Hilaire's Voyage dans l'interieur du Brésil, 1830.

of great indulgence during which they revel in orgies of drinking and sexual pleasures, and then suddenly they bring these to an end by hanging themselves.

These cursory parallels drawn from the history of primitive or quasi-primitive races lead to one conclusion: suicide is evidently as old as the human race, it is probably as old as murder and almost as old as natural death. The lower the cultural niveau of the race, the more deep-seated the suicidal impulse appears, and as a result the folk-lore of the majority of primitive races idealizes rather than condemns suicide. The primitive man is not afraid of death, although he is frequently afraid of the spirits of the departed, and he views suicide not only as a natural but as a desirable end to his existence on earth. The universal rejection of suicide as something sinful and therefore forbidden dates only from the fifth century of our era, at which time St. Augustine condemned voluntary, self-imposed death. The impulse to destroy one's self appears to be so deep-rooted and serenely matter-of-fact in primitive man that when the Christian civilization made contact with the "savage," many a paradoxical clash of psychologies occurred. Rasmussen relates an instructive incident in his *Iglulik Eskimo*.[20] An old Eskimo, apparently hopelessly ill, asked his wife to help him to die. Since they both belonged to the local Catholic mission, suicide was forbidden; on the other hand, Eskimo tradition asserted its reasonable demand to die, either by means of suicide or a self-requested death at the hand of another person.[21] The old Eskimo soon found a good way out of the dilemma. He proceeded to hang himself, but to keep his account straight with the priest he asked his wife to cut the rope which bound his neck just before he should expire. The loyal wife fulfilled the request and then said to Rasmussen that she had "hurried death up a little, as it is apt to be so very slow at times."[22] This serenity and simplicity, so foreign to our modern man where such issues are concerned, was fully supported by the

[20] Rasmussen, K.: Culture of the Iglulik Eskimo. Rep. of the 5th Thule Exp., Vol. VII, No. 1 (1929).

[21] This is almost a universal custom among primitive races; the aged request their children to kill them and the latter (usually the son) are glad and proud to perform the service, considering it an honor and an act of charity. *Cf.* Koty, John: Die Behandlung der Alten und Kranken bei den Naturvölkern. Stuttgart, Hirschfeld, 1934.

[22] Rasmussen, K.: *Op. cit.*, p. 97.

idealization of the act of suicide. In Scandinavian folk-lore no one is permitted to enter Walhala who did not die in battle or from suicide. The Iglulik Eskimo believes that death by violence has a purifying effect and those who die in such manner enter a hereafter called the *Land of Day,* while those who die a natural death must reside in the *Narrow Land.* The very names denote the preferences of the race. The inhabitants of the Marquesas Islands place all those who die a violent death in a beautiful paradise, while those who die a natural death are relegated to the dark and horrible lower depth *Hawaiki.*

6.

Whatever the philosophical and speculative psychological implications of these facts may be, one is justified in assuming that the suicidal impulse of our contemporaries—the individualized psychology of each individual case of suicide notwithstanding—must be connected by some invisible roots with the whole history of suicide as a phenomenon of man's natural behavior. The man of today, as far as suicide is concerned, is deficient, indeed, as compared with his forefathers who possessed a suicidal ideology, mythology, and an unsurpassed technique. The cocoa palm and the high rocks were used more frequently and efficiently in the service of this ideology than we use our skyscrapers today; self-mutilation, poison, hanging (mostly strangulation), self-requested annihilation (the forerunner of our modern suicide-pact) were all used before the dawn of our modern civilization and modern psychopathology. This being the case, it would seem that to solve the puzzle of suicide would require a revaluation of our present-day method employed in clinical psychopathology in the direction of comparative and genetic psychology; it would seem that a study of the deeper, highly individualized psychology of individual cases of suicide, unless they are supplemented by the study of the deeper psychology of primitive suicide, will always leave the fundamental problem totally unsolved. Knowledge of this deeper primitive psychology is still lacking and the purpose of this communication is, *first,* to point out at least some of the reasons for the need of such knowledge, and, *second,* to offer briefly an hypothesis of what appears to be the plausible history or origin of suicide. However, before this hypothesis is formulated it should be emphasized that individual clinical studies cannot

be over-estimated. The complexity of individual reactions does not permit us to differentiate the purely individual and ontogenetic from the philogenetic unless the ontogeny is studied fully. Just as dreams and various infantile reactions cannot be understood without a full comprehension of the specifically personal in them, so the problem of suicide is bound to remain unsolved if the personal determining factors of it are overlooked; but, as in the case of dreams and our unconscious life in general, the total reaction of the individual, the pattern of his affects, and his unconscious imagery—all converging into motor expression called suicidal behavior—follow not the rational, logical pathway but rather a primitive, affective paralogical one. To put it in other words, every voluntary act of suicide, despite its external coat of deliberateness, in reality presents a sort of complicated reflex motor response, the center of the reflex arc being imbedded deep in our racial past in a matrix of intense primitive affects. This is the reason why a five year clinical study of approximately 165 cases of suicide—about 14 of which have been deeply analyzed with satisfactory therapeutic and scientific results—led me to turn to ethnological material. Unfortunately, as has been pointed out at the beginning of this paper, the very extensive literature on the subject either fails to approach the problem from the psychological point of view, or it presents a rather amateurish type of psychology devoid of scientific method and of clinical knowledge. The traveler, no matter how intelligent, and the ethnologist, no matter how scientific, lack the necessary background for a study which involves material that the psychiatrist alone is able to furnish. Unless and until the psychiatrist and the psychoanalyst go directly into the field to observe and to study the primitive material, this deficiency will continue to exist, and whatever material we may stumble upon will offer little more than an opportunity for conjecture. The excellent compilations of Wisse and Koty, covering the observations of about four hundred primitive peoples from all parts of the earth, remain after all mere compilations. In a large measure, however, these two sources have formed the basis for what follows.

7.

I shall have no opportunity here to formulate even briefly any concept of the deeper psychology of suicide—this must of necessity

be left to some future communication. The following discussion will be limited to descriptive, purely phenomenological impressions.

As has already been mentioned, the most persistent and therefore the most dangerous type of suicidal individual met with clinically is the one who gives evidence of unconscious identification with a dead person. The impulse to die is not based on the *actual* loss of a relative or friend (father, mother, or their psychological surrogates) but on the *fantasied* loss. Even as was the primitive slave or the primitive woman, the individual seems to be unconsciously impelled to join his dear dead while the body of the deceased remains uninterred, and in the *fantasied* death the body is ever-present, so to speak. It would seem that joining one's dead is the universal form of primitive mourning whose original meaning is fully preserved among civilized races although it may assume a different guise. Thus, throughout the period of mourning, the civilized man dresses in black (this is true at least of the white races), refrains from attending the theatre or amusing himself in other ways, and during the first stage of mourning, feels emotionally incapable of visiting people, working, or otherwise indulging in any social activity. Briefly, the civilized individual *withdraws* from life, he eliminates himself from normal human existence on earth even as the dead person is eliminated, he enshrouds himself in black as if to cover himself so as not to admit the light of day in symbol of the dead who is excluded from sunlight by the confines of his grave. The *actively* suicidal individual also appears to be in mourning, but his is not a sublimated gratification of the need to identify himself with the dead; instead, he reverts to the primitive pattern of mourning. A regression to the primitive impulses invades his motor system so that in *acting out* his *neurotic mourning* he actually joins the fantasied dead by killing himself, as the primitive man did at the open grave of his master.

However, while this form of suicide appears clinically to be the most primitive, a perusal of the ethnological literature leads one to believe that this form of self-destruction is a later and more complex evolution from a more primitive and simple attitude towards one's own death. It appears that originally man accepted life on his own terms: a sickness, any sort of discomfort, any strong affective tension, made him feel that life had violated its contract with him, so to speak, and he then would leave his unfaithful partner. The

suicide of the red Indians prompted by an epidemic of smallpox may serve again as an illustration. In this case, even if the red man recovered from his illness he would frequently resort to suicide when he noticed that the sickness had left in its wake a disfigured face or body. Affective tension—like rage—led to the same outcome. Neuhauss reports that if a man from New Guinea beats his wife she hangs herself, whereupon he, the husband, kills himself, too.[23] We learn from the same source of a couple from Tami whose quarrel over a cigarette butt culminated in their respective suicides. But still more remarkable is what appears to be the earliest or at any rate the simplest form of suicide which is more than reminiscent of the simplicity with which the confrère of Cervantes' Berganza died. Holmes,[24] who spent a quarter of a century among the Iji and Naman tribes of the Gulf of Papua, states: "Death and all that belongs to it is full of significance to these people. They are not afraid of it *per se,* they have no dread of its approach; in fact, given provocative reasons, they welcome death. I have seen several young men and women lie down and die as any one lies down and sleeps. It was not suicide by poison and they committed no violent act nor did any one else; they just died." Detzner [25] states that he saw hundreds of cases of just such peaceful, voluntary deaths. We are justified, I think, in considering these as the earliest forms of suicide, and in regarding the passivity of the whole process as the distinctive characteristic of these earliest forms: The individual simply lies down and quietly waits for death to come. This passivity is found in the Eskimo who retires to a hut to wait for death, as well as in the aged among primitive peoples who, when they become old and feeble, ask to be killed.

Apparently the hedonistic unwillingness on the part of primitive man to accept sickness, old age, or too many painful emotions not only made it possible for him to accept death willingly, even to seek it, but it also gradually led him to project his hedonistic ideal into a hereafter where life is eternal and forever devoid of any discomfort. Evidently Paradise was thus created by mankind not through the birth of Adam and Eve but through the acceptance of

[23] Neuhauss, R.: Deutsche Neu-Guinea, 1911. Vol. 1, p. 114.
[24] Holmes, J. H.: In Primitive New Guinea, 1924. p. 227.
[25] Detzner, H.: Vier Jahre unter Kannibalen, 1920.

death by primitive man who preferred voluntary death rather than relinquish his ideal of what life should be. The primitive races cling tenaciously to their belief in the after-life; psychologically death does not exist as far as they are concerned. One suspects that this absolute faith in the immortality of man was one of the most forceful determinants of the institution of human sacrifice. I have in mind the victim's point of view, for wherever the custom exists no slave, no woman, ever refuses to die to join his or her master, but seems to consider it a duty, an unusual honor, and strives to attain this end with a persistence no admonition, no amount of restraint on the part of the missionaries could destroy. In point of fact, the Micronesian woman prefers to join her husband in his death than to remain behind; she knows her husband will provide for her in the hereafter and if she continues to serve him in death she will be relieved of the concern of finding herself a second man equal to the first.

It must be noted that joining the dead was originally also carried out passively in the form of being killed. Human sacrifice at the grave of the master is a good illustration of passive murder, and in so far as the slaves and women were always willing to die in the manner offered we might also call it passive suicide. On many islands of Micronesia and Melanesia the women do not kill themselves after the death of their husbands, but ask to be killed by one of their relatives—a request which is always granted. Among some tribes tradition requires that this murder be committed while the victim is asleep, and it appears that many women, in order to be able to sleep, go into the fields and collect certain herbs that have a hypnotic effect. Since the method of choice for the murder is almost always strangulation, we may think of strangulation as being the earlier, and poison, culturally and psychologically speaking, the later form of suicide. Strangulation or hanging, *i. e.*, obstructing one's breath, seems to be the most ancient form of suicide, strangulation presenting the earliest passive and hanging the later more active form. Both types are met with clinically still today. It would be interesting to compare statistically the frequency with which various methods of suicide are used. At present one is under the impression that hanging is the most ancient and still the most frequent one. The Eskimo of Hudson Bay, for instance, when old and

no more able to work, asks his children to strangle him; the Negro of Sudan stops motionless and holds his breath until death comes. The breath—always identified with the soul, spirit, pneuma, pranná in ancient India (meaning both "breath" and "I")—seems to be the chief point of attack. In Sudan this method is called "holding one's breath." Man holds his breath in order to give it up. This is characteristic of man's essential ambivalence toward life and death. The same ambivalence holds true in the two-fold feeling of allure and fear which the primitive man—and for that matter, the civilized man—experiences when he faces the problem of death. This being the case it is only natural to find that the impulse to join one's beloved dead, the unconscious or conscious cult of suicide, should arouse even in primitive man a double attitude: He idealizes suicide and he also fears it. This is reflected in the belief of the Iroquois Indians, for instance, which Wisse cites as reported by Lahontan: If, when a husband or a wife dies, the survivor dreams twice of the dead person within six months after the latter's death, he then kills himself by taking poison; if, however, the survivor dreams but once of his dead mate, he does not commit suicide since the first dream is supposed to mean merely that the spirit of dreams was not certain whether the dead person was dissatisfied with the hereafter or not.[26] In New Guinea, for example, the belief is prevalent that "the spirits of suicides will lure friends into a like death," [27] and that "the spirit of a man who hangs himself carries around his neck a rope, and this he will throw to friends to be used for the same purpose." [28] which is apparently a projection of one's own wishes through identification in death.

Mention should also be made of another method of suicide which also points to a psychological identification with the dead buried in the earth, *i. e.*, eating earth for suicidal purposes. The Eskimos, the Kirgis tribes and other primitive races resorted to this method.

On the basis of the above, we might conclude that the most frequent suicidal drive which we find clinically today in various psychopathological conditions—that is, the primitive identification with the dead—has its own history which might be conceived as follows:

[26] Wisse, J.: *Op. cit.*, p. 168.
[27] *Ibid.*, p. 54.
[28] *Ibid.*

In the beginning there was the passive form of suicide which was actually a requested murder. This gradually evolved into active self-murder, the psychological purpose of which was *first,* entrance into hedonistic eternity, and *second* joining, *i. e.,* identification with the dead; this hedonistic, as we say today, *narcissistic,* goal of man which espoused death in order to enter eternal life seems very early to have become charged with great psychic energy and acquired the appearance of almost a primordial instinctive drive. Achille-Delmas aptly called it "the perversion of the instinct of self-preservation," and perversion it is, not only in its form, but also in its psychological content. If we stop to think of the meaning, *i. e.,* of the psycho-biological function of a perversion, our statement will become clear. What is a perversion? It is a method and a form of gratifying one's instinctual primitive drives in a manner more primitive and more infantile than is normal. What is the gratification which is derived by the suicidal act and on what level is this gratification achieved? The first part of the question can be answered as follows: Through the primitive act of suicide man achieves a *fantasied* immortality, *i. e.,* uninterrupted fulfilment of the hedonistic ideal through mere fantasy and not through actual living. This is quite obviously a non-realistic and purely infantile way of achieving a seemingly adult goal—a fact justifying the use of the term perversion. We can see now why it is that the suicidal drive appears to be endowed with such an elemental force; it has such a force because it springs from the most vital drive man possesses, the instinct of self-preservation. It is this instinct shifted into the psychological field that drives the human ego to the assertion of immortality, and thus to fantasied preservation of the ego through death. One might even say that what man today attempts to achieve by means of books, monuments and works of art was achieved by primitive man largely through suicide. Here and there within the frame of our civilization this old method of self-assertion revives and re-enacts itself with the result that the individual destroys himself. Although this is demonstrated more obviously in psychopathological material, it is not necessarily pathological. In conclusion let us recall the almost universal idealization of the act of suicide among primitive races, and in the light of our hypothesis we will see that this idealization is in fact but another method of re-stating and re-asserting one's own immortality.

Needless to say, the hypothesis set forth here covers but one side of the problem of suicide—that of the individual's identification with the dead and his fantasy of immortality. It is obvious that a number of other elements enter into the psychic structure of the act of killing one's self, and that these elements are responsible for other types of suicide, which are at least as important psychologically as the one to which this communication is devoted. It is hoped, however, that in concentrating our attention on an isolated and what seems to be the most significant type, incontrovertible proof is offered that the proper solution of the psychological and the biological nature of suicide is to be found in the comparative and comprehensive study of ethnological material—a study which is as yet to be made.

SOME POINTS OF COMPARISON AND CONTRAST BETWEEN THE TREATMENT OF FUNCTIONAL DISORDERS BY APACHE SHAMANS AND MODERN PSYCHIATRIC PRACTICE.

By M. E. OPLER, Ph. D., New York City.

Not long ago an anthropological field-worker wrote to me to ask whether a ceremony which he had investigated among one tribe of American Indians was " the same " as any ceremony I had witnessed among Apache tribes. He enclosed some data concerning the rite in question, all of which dealt with the mechanics of shamanistic procedure. It was possible, from his material, to say what paraphernalia the shaman wielded and in what order and manner he manipulated his sacred objects. It was not possible, however, to infer the ideological pattern to which this formal routine was subordinate.

A surprising amount of anthropological research has proceeded along just such unrealistic and unimaginative lines. We may suspect that such preoccupation with the externals and trappings of primitive religion is an historical residuum of the smug acceptance of the ceremonies of pre-literate peoples as so many varieties of " superstition." While such an attitude persisted the question of whether the primitive rite could accomplish what it intended to do, whether a native curing rite, for instance, could actually relieve a malady, was seldom raised, for it was assumed in advance that the therapeutic value of the rite, divorced as it was from any scientific medical knowledge, must be exactly zero.

The increasing interest in functional disorders, and our greater knowledge of the dependence of physical well-being upon mental health have reopened this whole problem. Accordingly, in my own field-work I have tried to see Apache shamanism from the point of view of a native, in an attempt to determine what functions, therapeutic or otherwise, the shaman may perform.[1]

[1] This discussion is limited to the shamans of the Chiricahua and Mescalero Apache tribes now residing on the Mescalero Indian Reservation in New Mexico.

In fairness it should be stated that the necessity for obtaining an intimate and well-rounded picture of Apache shamanism was practically forced upon me by the nature of the ethnological problem. For the Apaches, vague, undifferentiated supernatural power, capable of being translated into personal shamanistic lore and used for good or evil ends, pervades the universe. It can be utilized by the individual only after it approaches him through the instrumentality of some animal, bird, plant or heavenly body which offers him a ceremony consisting of songs, prayers and ritual gestures. Theoretically such supernatural encounters may occur to any Apache man or woman. Such a ceremony, once gained, can be used in behalf of one's fellows.[2] From the point of view of the anthropologist with a limited amount of time and money to devote to his project, the situation appeared at first most disheartening. The sources from which these people obtained their respective powers seemed limited only by the flora, fauna and natural forces with which they were familiar. To abstract the pattern from such an array of possibilities called for a huge body of material bearing on power obtained from many sources. Fortunately I was allowed over two years to pursue the Mescalero and Chiricahua Apache researches.[3] As I had suspected would be the case, but could not, of course, so state *a priori*, the various ceremonies, except for minor variations, fell into a given ritualistic pattern. In the course of establishing this pattern, however, it was obligatory to approach Apache shamanism from every vantage point, to consult as informants people who had been involved in Apache ceremonial life as shamans, patients and on-lookers, and to build up the body of material from which this summary is drawn.

For one thing the Apache shaman is not a credulous dupe of his own supernaturalistic claims and boastings, who undertakes to cure any ailment, no matter how hopeless. Such an indiscriminate practitioner soon finds himself without honor or clients. The seasoned

[2] For a more extended treatment of Apache ritualism see M. E. Opler, "The Concept of Supernatural Power among the Chiricahua and Mescalero Apaches," *American Anthropologist*, Vol. 37, No. 1, January-March, 1935, 65-70.

[3] For these opportunities thanks are due to the Laboratory of Anthropology of Santa Fe, the University of Chicago, Columbia University, the Social Science Research Council, the National Research Council, and the Southwest Society.

shaman is a shrewd and wary person who has witnessed enough of suffering and death to recognize serious organic disturbances when he sees them, and he is often very reluctant to accept responsibility for the cure of these. In many cases the shaman will simply tell the patient, "You waited too long to call me," or, "The good in you is mostly dead already: I can't help you." One shaman, finding the youth he had been called upon to cure suffering from a most serious case of tuberculosis, resorted to legerdemain to demonstrate to those present that he was unable to be of any assistance. He thrust two eagle tail feathers down the throat of the sick boy and then shook worms from their ends. These worms were large and active. This indicated, he claimed, that they were hungry, that they had already eaten up the youth's lungs and that recovery was therefore unthinkable. Another shaman, correctly gaging the unlikelihood of success in undertaking a cure, appealed to his "power" to tell him what the outcome would be. He was instructed to touch the quill end of a downy feather to the patient's bared chest and to withdraw from the case if the feather should fall. The feather did fall, and the shaman made his exit solemnly but with every evidence of relief.

The veteran shaman who eschews the incurables is usually quick to treat the less serious indispositions and solidify his reputation by rendering prompt relief. Therefore a great deal of herbalism finds its way into Apache rites. The shaman is often interrupted by his "power" while in the midst of his ceremonial songs and directed to dose his patient with some common laxative or emetic. Of course the method of offering it to the patient is in keeping with the occasion: it must be drunk from a ceremonial vessel, perhaps a turtle's shell, the spot where the lips are to touch the vessel is marked with a cross of pollen, and the vessel must be carried to the mouth four times before the liquid is swallowed. Nevertheless the medicine is often no other than one his mother forced the patient to take in days past without so much ritual, and the disorder, perhaps induced by faulty diet, is almost gone the next day.

What I am suggesting is that the Apache shaman is far from an inspired automaton who enters upon his ritual without regard to the nature of the complaint, the circumstances and the probable outcome. He is a circumspect and careful worker more often, a good judge of his fellowmen and of the ills to which humankind

is heir. It is the exemplification of these qualities which accounts, in some measure at least, for the vitality and tenacity of Apache shamanism. Of course the Apache shaman, like our own patent medicine vendors, often receives credit for the cure of those who would have recovered in any case, and who were not influenced one way or the other by his efforts. We do not mean to claim, of course that the shamans never take cases except when recovery is certain, or that they refrain from prescribing remedies except where they are familiar with an herbal specific for some minor irritation. I have recorded many cases where the heroic treatment prescribed by the shaman would cause the medically minded to groan, and where the results were certainly disastrous if not fatal.

It is apparent that so far as actual organic pathology is concerned, the shaman's contribution is largely a negative one; the less he does, the better for the patient. Our interest in the shaman in such contexts is to witness his adroitness, to watch with what acuity he estimates the seriousness of the ailment and how cleverly he protects himself and his " power " should a turn for the worse or a fatality ensue.

But, while the shaman's stock in trade can scarcely be recommended for serious bodily disorders, there is a province in which he can claim better success. We refer to functional or mental difficulties. Evidences of mental disturbance, ranging in gravity from slight tics to suicidal and homicidal mania have come to my attention in the course of the Apache researches. Apache culture is especially conducive at many points to states of morbid fear and anxiety. The first attempts to control the child are in the nature of appeals to fearsome bugaboos and in terms of terrifying penalties, not excluding castration threats. As he grows older he learns to fear the ghosts of the dead and the sorcery of living rivals. One sensitive informant moodily stated it thus: " The Indian's main concern is fear. . . . . I've been thinking a good deal about this. It seems that the whole Indian life is fear. The word is used a great deal too; there is fear of eating the head of an animal, fear of this and that. I go visiting people and hear it."

Space does not permit an extended discussion of the many specific instances of functional disorder noted and the details of the treatment by which the morbid manifestation or its symptoms were

relieved. That is reserved for later treatment in monograph form. All that is proposed here is to call attention to the degree to which the Apache shaman attempts to cope with mental anxiety and pain and to compare, in broadest outline, his attitude and technique with the methods of those who face the problem of alleviating mental distress in our own society.

In the first place the Apache insists upon the impossibility of curing one who is sceptical of the efficacy of the ceremony to be performed or unconvinced of the integrity of the practitioner. The stage is set so as to command confidence and belief in the shaman. An Apache who seeks shamanistic help has to humble himself to a point which would be unacceptable unless he were prepared to put himself unreservedly in the hands of the practitioner. The sufferer or a relative who speaks for him must approach the shaman in the most obsequious fashion. He must call him by a relationship term, whether or not the shaman is a relative, lay a ceremonial cigarette at his foot, tell of his great need and of his absolute dependence upon the particular shaman's ceremony. " Only you can help me. Do not fail me know," is the closing plea. The shaman ponders the matter. He mutters something about the ingratitude of a former patient or the pressure of other duties. After a sufficiently significant pause he stoops with fine condescension, picks up and smokes the cigarette, and so indicates that he will take the case. But he does not go at once to the rescue. Instead he advises the supplicant concerning four ceremonial gifts which must be tendered him as payment to his " power " before he can proceed with the rite proper. A representative set of such gifts would be a pouch of pollen, an unblemished buckskin, a downy eagle feather and a piece of turquoise. Even after these have been presented, he has other orders to give. A special structure for the rite, with the door facing the east, is often demanded, and the close relatives of the patient are expected to furnish all the labor involved. By such requirements the Apache shaman takes pains to eliminate half-heartedness at the outset, and he proceeds on the assumption that for best results confidence in the technique he is to use, confidence in his ceremony and his " power," must be instilled.

Accordingly, when all is in readiness and the ceremony is about to begin, his first act is to validate his ceremony, and to impress

the patient and the assembled relatives with its potency and its source. He describes the supernatural encounter which led to the acquisition of the ceremony; he relates how he was led into the "holy home" of the "power" and there tested in every conceivable way, how the ceremony and its uses were unfolded before him, and how, through his ceremony, he has since been able to enlist the aid of his "power" in the curing of those who come to him in the proper fashion.

The insistence upon belief in the shaman and his "power" is one of the most dominant and omnipresent themes of Apache ritual life. There is no more common phrase in the ceremonial songs than the one which can be translated, "I believe it." It is assumed that the "power" will scarcely be inclined to extend itself or to expose its representative to danger on behalf of a patient who lacks the requisite degree of faith. Quite understandably, then, every voluntary and heart-felt expression of faith on the part of the patient is accepted as an encouraging sign. During one ceremony of which I have a record, the patient, deeply stirred, suddenly joined the shaman in the chanting of his song. The shaman, immensely pleased and gratified, predicted an unusually speedy recovery for this woman on the grounds of her evident belief and religiosity. Conversely, when the patient remains apathetic and disinterested, the shaman is prone to explain an alleged failure of the ceremony by this circumstance. Perfect faith is required not alone of the patient but also of all those in attendance at a rite. Shamans have been known to refuse the benefits of their rite until persons suspected of manipulating power for dubious ends, or persons with a marked tendency to scoff at the supernatural claims of others, have been requested to depart. The shaman usually exercises authority in the selection of those who will be allowed to enter the ceremonial shelter, and he reminds those present of their vicarious participation in the event by imposing some restriction upon them. He may, for instance, forbid them to scratch their bodies with their fingernails during the ceremony proper. Often he pauses to exhort them to "good" thoughts and prayer for the sick person.

As a spur to credence, respect and faith the Apache shaman often resorts to legerdemain. Most commentators upon shamanistic

sleight of hand are inclined to judge the acts in terms of truth or deception, and accordingly are compelled to frown upon what they feel to be the fraud and trickery involved. Their strictures, at least for the Apache shaman, miss the essential core completely. It would be as intelligent to berate those who screen a motion picture as deceivers for using trick photography. The trick photography is designed to produce a pleasing illusion; the Apache ceremony is designed to inculcate belief in the shaman's powers. The shaman at no time feels impelled to share the secrets of his art with the patient. His office, as he conceives it, is to promote that state of mind essential for a cure.

With the preliminaries over, the shaman, in an effort to delve to the root of the trouble, "traces" his patient. Thanks to the good offices of his "power" the events of the patient's life leading up to the psychotic symptom are supposed to become clear to him. It is commonly said among the Apache, "You cannot hide anything from a shaman. They know everything you have done and every place you have been from the beginning." In practice this may mean that a competent shaman has occupied his time well in learning everything possible concerning a prospective patient before the treatment begins. Armed with such knowledge the shaman makes a great display of enumerating the significant events of the patient's life. He may have facts in his possession which the patient has long forgotten. He may have unearthed gossip which the patient thought relegated to the past or unknown to anyone besides himself.

Much more is involved here, of course, than mere industry displayed by the shaman in interviewing those who are acquainted with the patient's history. The differential in respect to the gifts and aptitudes of the various shamans is considerable. It will readily occur to the reader that some shamans must be more sensitive than others to the difficulties and fears of a patient, quicker to intuit or grasp the situation, more skillful in drawing out valuable clews, and nearer the mark in deductions drawn from those clews. At any rate, the patient is warned that the true facts cannot be hidden. He is urged to add as much to the shaman's account as possible and to produce as complete a picture as he can of the events and circumstances surrounding the inception of his trouble. With his

memory thus jogged, the actual event or trauma which crystallized the tic or seizure is often recalled, and in the course of such associations the symptom may actually disappear.

Now the event which precipitates the symptom, anxiety or obsession is always couched in familiar Apache terms. There is a group of animals and birds among which the snake, the bear, the coyote and the owl may be listed, that are known for their " evil influence " and " evil associations " and through which sorcerers are thought " to work." It is often recalled that the symptoms date from an encounter with one of these.

But to drive the inception of a psychotic symptom back to an incident involving a dreaded animal or bird is no complete explanation, even though it may temporarily relieve the patient. It is no more a solution than is the ability of a psychotic in our society to recall the precise moment when a sympton of his took shape. The symptom is itself a symbol of deeper-lying difficulties, and unless these can be investigated there is no sure safeguard against recurring symptoms and continued psychosis. The therapeutic value of the shamanistic treatment so far as we have described it may be compared roughly with the early work of Breuer, where he induced a patient under hypnosis to recall the circumstances under which a hysterical symptom first took form and was thereupon able to dissipate it.

One note of caution should be sounded here. The Apache's point of view in respect to the accuracy of a shaman's explanation is pre-eminently pragmatic. If the patient's anxiety is relieved or the symptom disappears, the success of the shaman's effort " to trace " the difficulty is accepted without reservation. But we must remember that the shaman generally takes the lead in offering these explanations and that he first has induced a state of mind and an atmosphere which guarantee that his diagnosis will not be treated lightly. It is not unlikely that where the shaman has evoked the belief and confidence for which he aims, a very tried and troubled patient will accept his explanation with alacrity, and even, at least for a time, obtain great relief from it, no matter how wide of the mark it may be. In short, we have every reason to believe that a substantial part of this Apache therapy consists of suggestion. In the hands of a clever and thoughtful shaman suggestion may be a

powerful weapon, but whether it can penetrate deeply enough to the core of the disorder to effect a permanent cure is questionable. My records and accounts of ceremonies tend to indicate that specific symptoms are cleared up only to be replaced often by symptoms of a different form. Since each symptom is treated as a separate disease, the recurrence of the disorder, when the symptomatic expression is different, need not be accounted a failure for the shaman. I have, for example, been following the case of one woman who has undergone at least five ceremonies for hysterical attacks in recent years and is quite satisfied that she has been cured on five different occasions. We shall return to this problem later.

It is noteworthy that Apache shamanism does not halt with revealing the symbol of the patient's distress, the bear, the snake or whatever has served him as the rationalization for his psychotic flight. The shaman's task is now to learn why the embodiment of evil "bothered" his patient. For the answer to this question he envokes his "power." He sings his ceremonial songs and recites his prayers in an effort to communicate with his "power," to obtain its aid in tracing down the forces which have made his patient ill and to gain its support in opposing those forces. The effort to enlist the co-operation of the "power" in this work is often a stirring spectacle. The shaman halts his songs to carry an extempore appeal to his "power." He tells how eager he is to cure his sick friend. He reminds his "power" of his faithfulness to its commands, of the promises it has made to him. He dramatically relates his conversations with his "power" to those in attendance. In the end he announces, of course, his "power's" complete interest in the case and its determination to prosecute it to a successful conclusion.

The lines of the battle are now drawn. It is the shaman and his "power" against the forces which have caused the patient's illness. Further songs, conversations with the "power," and ritual manipulations reveal the underlying cause of the illness. A sorcerer who hates or envies the patient has used his "evil power" and sent the bear or some other fear inspiring animal to frighten him and make him sick. Or the evil power has been used to shoot "arrows," objects of witchcraft such as bone, hair, etc., into the patient, it may be claimed.

We may pause to consider the psychological significance of the concept of sorcery as it appears in Apache ideology. In another paper I have commented upon the fear, as it manifests itself in Apache society, that one may be destroyed by the " power " of a close relative.[4] The conclusion was reached that such fear became overt and pathological only when actual rivalry and opposition in every-day affairs were shown to be present. In other words, the unreasoned fear of a relative's " power " was found to be related to the Apache's realization (often unconscious, of course) that a mundane basis for his fright really existed. This explanatory principle can be extended to the morbid fear of sorcery in general. The fear or suspicion of any Apache that sorcery is being leveled against him arises, in last analysis, because his guilty conscience acknowledges the grounds for retaliation, upon a supernatural level, for opposition, death wishes and antagonisms he has directed against others. The fear that he may become the object of the " evil power " of others is to be related to the Apache's consciousness that he has done wrong, or that he is the object of criticism and dislike among his people.

I have in mind an informant whom I grew to know rather well. This man related to me the following story. He attended a ceremony where his mother's sister officiated as shaman. A series of sudden deaths had occurred in a certain family, and the ceremony was held to heal two sick survivors and to determine the cause of the deaths which had already occurred.

The shaman learned in the course of her ceremony that a feud between the stricken family and another had resulted in the " witching " of a gate through which the members of the former customarily passed. The shaman added darkly, " Some of our own relatives came pretty close to that gate too." The informant thought she looked directly at him when she said this. A little later he went to the brush to defecate. When he tried to arise he found it difficult to do so. In all probability he was the victim of nothing more serious than a cramped muscle, and in other circumstances would have dismissed it from his mind. But, with the memory of the gate episode still fresh, his immediate thought was that he was paralyzed.

[4] "An Interpretation of Ambivalence of Two American Indian Tribes," the *Journal of Social Psychology*, Vol. 7, 1936, 82-116.

In an agony of excitement he reached for a stick with which to force himself upward. One can be sure that he grasped the first stick his fingers touched without considering whether it was equal to the task. The twig broke under his weight and, as he somewhat inelegantly told me, " I went down in all that mess. I couldn't move. I called for my father and mother. My sister came running. I said, ' Sister, you'd better get back. Something is wrong.' [5] She ran back crying. Then my brothers came running up, and they pulled me out. They were crying too. My mother came and carried me on her back like a little baby, smelling and dirty. Think of it! She took me to a tent and cleaned me up." The informant was a full-grown man when this occurred. His father performed a ceremony over him and cured him on this occasion.

We relate another experience which befell the same man. He was, among others, being painted and dressed to impersonate the Apache masked dancers who appear in certain rituals. At one point he forgot himself and spoke and swore in English while they were painting him. The old man in charge of the rite was quick to correct him. He said, " Look here, that kind of talk doesn't go here. You men should be praying in your hearts. Pray for all the good things. Be saying, ' Let me be a reliable masked dancer. Let me be reliable in life.' That's what you should be doing while you are in this brush hut." Later the younger man forgot again. He had difficulty in placing the mask over his head and he burst out with, " I can't get this damn thing on! How does this damn thing work? " His fellow dancers remonstrated with him, and the old man shouted, " Hey, what are you doing? Now if anything happens to you, you'll say you are witched, but I warned you." The masked dancers left for the place where they were to perform. Early in the dance this man was seen to press his hands to his head, break out of line, tear his mask from his head and run towards his camp. He was found " crying and yelling and rolling around." The old man who had warned him of the danger he courted by his impiety thereupon held a ceremony over him which cured him.

[5] Great reserve exists between Apache siblings of opposite sex, especially in sexual matters. It is most interesting that the informant, despite his evident anxiety, had presence of mind to keep his sister at a distance.

Perhaps it will be wondered why these two attacks, interesting enough in themselves, have been introduced at this point. Their significance lies in the fact that this man has flouted the customs of his forefathers more often, perhaps, than any member of his tribe. He has hunted and handled animals which no other Apache would touch and he has taken pains to oppose the white man's belief and way to the native conception at many points. He is accordingly disliked and suspected, and he is well aware of it. "I guess many of these Indians think I am a witch," he once said ruefully. "I've done just about everything, and I guess I'm the only Indian who has." But for all his veneer of emancipation, this Apache is far from untrammeled by the conceptions of his fellow tribesmen. Not only does he fear that their claims of supernatural power are real, but he deems himself, because of his waywardness, an especially likely target for the supernatural missiles.

I do not insist too strongly upon this analysis of my informant's hysterical attacks. Admittedly I do not know the man and all the conditions involved as thoroughly as I should like. Dream evidence tends to support the interpretation outlined above, however. The informant's dreams seem to emphasize the perplexing loneliness in which his division of cultural allegiance has left him. In one dream he finds himself alone, fighting a ravaging fire that sweeps down the canyon. In another he walks unaccompanied out on a plain. Nothing but one tree is visible and he proceeds towards it.

If we have gained some insight into the problem of how fear of the supernatural power of those who have reason to dislike him may arise in an Apache's mind and find an outlet in hysteria and anxiety, we may continue to a brief review of the measures by which the shaman seeks to assuage and dismiss such fear.

What the Apache fears is the murderous attack of power from the out-side. In the place of his patient, who has recoiled from such fears to the extent of becoming psychotic, the shaman substitutes himself. The battle between the malevolent power and the patient is transformed into warfare between the shaman and the sorcerer. As soon as the shaman has announced that the cause is sorcery, he declares against it. "I hate that; I hate those who kill people in a way that no man sees. I'm going against that witch with my 'power.'" The shaman continues to sing. He consults with his

" power " on tactics. He relates how the sorcerer is trying to balk him and is desperately trying to hold his own. The theory is that a sorcerer, if bested, forfeits his power and his life. If the sorcerer cannot prevent the shaman from sucking the bone arrows and other evidences of his malice from the body of the victim, these objects " come back on himself." A sorcerer whose " power " is bested is shot by his own " arrows " and dies soon afterward.

The strengthening psychological effect upon the patient of gaining a powerful ally can well be imagined. The shaman conveys the impression by his words, actions and general fury that he and his " power " are now the outraged ones instead of the patient. As is to be expected, the shaman seldom admits failure (though if the patient turns markedly worse, he will concede defeat) and his unqualified triumph over the " witch " is a great source of relief to the patient. The attention of the sick person is distracted from his own morbid symptoms to the struggle between his surrogate and the evil forces. Figuratively speaking, the patient is removed from harm's way while the battle rages. It is the shaman who assumes the dangers of the conflict. Should he lose, the patient will be no worse off than before, whereas the unlucky shaman will be in grave danger of losing his life, or of witnessing the death of some member of his own family.

At the conclusion of the ceremony the shaman makes a final gesture which may in some cases have decided therapeutic value. He imposes upon the patient some restriction or taboo. It may be an injunction to eat no meat from the head of an animal, to eat no entrails, to refrain from picking up some object which has been dropped, etc. It offers, in place of a tic or compulsive symptom, a clever substitute. When it has served its purpose and becomes irksome, a short ceremony at the hands of the one who pronounced the taboo makes its continuance unnecessary.

If, now that we have made some acquaintance with the details of an Apache ceremony, we pause to consider it as a totality, we shall be impressed with the consistency and consonance of its elements. First the ground is prepared for the ready acceptance of the explanation by the inculcation of belief in the shaman and his " power." Then the explanation is offered. Finally the shaman endeavors to protect the patient from the evils described in the

explanation. The dominant figure that emerges throughout the whole picture is that of the shaman.

The question that naturally arises now is the comparative one: Are these shamans the equivalents in Apache society of our psychiatrists and analysts? Are the assumptions which govern the efforts of the Apache shaman founded on principles distinguishable in our own psychotherapy? Here some essential differences between the treatment of mental disorders in the two settings must be noted.[6]

To begin with, the absolute faith upon which the shaman insists is not considered nearly so essential by the psychiatrist or analyst. In specific cases and in certain types of mental disorder confidence in the practitioner is no doubt desirable, but very often, and without prejudice to the final result, various stages of treatment may be marked by violent dislike or suspicion directed against the analyst.

It is not difficult to fathom why the Apache shaman must press for such unequivocal faith in his powers. He is about to attack the patient's symptoms largely through the medium of suggestion, and for suggestion to have any noticeable effect the receptivity and co-operation of the patient are demanded. Now it may well be that the shaman, aided by his own sensitivity and awareness, and guided by his knowledge of the patient and such information as the patient advances, actually can, in particular cases, correctly suggest the circumstances under which the symptom formation took place, and thus prove instrumental in alleviating that symptom. In other cases, it is just as certain, explanations which are far from true are accepted with avidity, partly because of the immediate relief they offer to those anxious and insecure, and partly because of the atmosphere of assent to the word of the shaman that has been evoked. In either case it is fatuous to suppose that the shaman, whatever his merits, has delved to the roots of the trouble. For one thing the Apache ceremony lasts but four days, a rather limited time in which to effect a permanent cure of a functional disorder. Again, the shaman's limitations of ideology are those of his patient; both are bounded and halted by the round of Apache conceptions.

[6] I am indebted to Dr. Harry Stack Sullivan for advice on some aspects of this paper which touch upon the problems and methods of modern psychiatric practice.

Even if the shaman succeeds in establishing the nexus between the mental state of his patient and some terrifying experience with an evil animal, natural force or witch-suspect to which the patient was subjected, he gets no farther than this symbol and its attending symptom. The animal or "witch" is, in keeping with the tenets of his culture, acceptable to the shaman as the final explanatory principle, and the personal or social situation which lurks behind the convenient symbol remains unexplored. If we were called upon to characterize the Apache shamanistic treatment of mental disorder in a sentence, we could legitimately say that it entails dealing with symptoms alone by the method of suggestion.

In psychiatric and analytic work the use, to some extent, of suggestion and explanation is perhaps inevitable. The careful worker takes infinite pains, however, to prevent over-guidance and suggestions on his part from becoming an impediment to the cure. As in Apache society, a neurotic of our own civilization will often accept erroneous explanations and will do it for such diverse reasons as the unconscious wish to prove the analyst wrong and thus to reduce him in stature or a desperate need for some prop to buoy up failing courage.

Likewise is the question of the amount of attention and treatment that symptoms in themselves should receive a perplexing one for us. Sometimes a symptom can be such a burden to the patient as to make living difficult and so solicits immediate attention. There are other cases which do not yield in entirety to extended treatment and where the only recourse, seemingly, is to deal with the symptoms as they appear, to tinker with the mental machinery in an attempt to keep it running as efficiently as possible. Apache ceremonialism is a veritable laboratory for research in respect to the questions of symptom treatment, the advisability of suggestion techniques, and the durability of benefits gained as a result of them. It is not unlikely that abundant Apache data concerning these points could be a distinct contribution to the understanding of our own problems in these directions and might lead ultimately to practical measures concerning them.

One more major distinction between the shamanistic technique and the psychiatric view requires emphasis. In the description of Apache ritual I have had occasion to draw attention to the promi-

nent rôle played by the shaman, especially in the supernatural contest with the sorcerer, evil animal or whatever has caused the distress of his patient. By taking his place and waging his battle for him, the shaman attempts to protect his patient on a psychological level from the forces which have been disturbing him. Such succor may easily relapse into over-protection. What relief the patient experiences then, and that relief in many cases is quite genuine, is bought at the price of too great dependence upon the shaman.

An incident will illustrate this point. I was about to give a certain Apache money in payment for his services. He surprised me, however, by requesting that the remittance be made in the form of groceries which were to be delivered to the camp of another man. When questioned concerning this unusual procedure he pleaded his great respect for the proposed beneficiary, who, according to him, was poor, aged and deserving. Later he admitted the true circumstances. The old man to whom I was expected to deliver the groceries had performed a ceremony over the wife of my informant and cured her of an attack of "ghost sickness," the dread of persecution by the shade of a dead relative. The required payment had been made at the time of the ceremony. But the frightened woman and her husband were still nervous and apprehensive. They felt that their future safety depended upon the continued protection by the shaman, and desired him to mention them in his prayers and duly warn and guard them if another misfortune were headed their way.

This excessive dependence upon the shaman has its decided drawbacks. It offers a tenuous hold on health which is at once disrupted whenever the patient loses confidence in the shaman or whenever the shaman loses interest in the patient. In the case cited above the husband and the shaman at length suffered an altercation, and the woman a relapse. To this dependence upon perfect confidence in another, modern therapy opposes the strengthening whenever possible of the patient's ego to the point where he can stand alone and, without panic, exercise some insight into his own forebodings and actions.

The question of extending the boundaries of psychiatry to include the data of pre-literate peoples is today of first importance and is earning the considered attention of a number of serious students. Progress along such lines waits upon the development of what Pro-

fessor Edward Sapir has called "the field of personality and culture," an area which presupposes investigators secure enough on anthropological grounds so that the cultural milieu against which individuals must be gaged will emerge for them, yet sensitive enough to the problems and findings of psychiatry so that the consequences of different cultures upon the mental life of man will not go unrecorded.

A STUDY OF ALCOHOLISM IN MEN.*

By JAMES HARDIN WALL, M. D.

In an approach to the study of alcoholism, the writer has selected 100 men who were patients at different times in the Bloomingdale Hospital between 1920 and 1933, a period of 14 years. They represent the total consecutive admissions of cases in whom the immediate cause of hospitalization was alcoholic indulgence. The diagnoses were as follows:

Diagnosis.	No. of patients.
Alcoholism without psychosis	55
Psychopathic personality with alcoholism	12
Delirium tremens	10
Acute hallucinosis	15
Korsakow's psychosis	7
Alcoholic deterioration	1
	100

The background of these patients is of interest. In the two preceding generations of 71 patients there were one or more relatives who used alcohol to excess. There were 27 alcoholic fathers. One cannot say definitely that the tendency to drink excessively is inherited, but these figures are significant for this particular group. Of striking interest concerning the family was a type of mother found in 37 instances. These typical mothers were inclined to have an exaggerated emotional attitude which manifested itself in spoiling, pampering, indulging and overprotecting their sons, the patients. It is quite possible that this type of mother was more frequent than was indicated by our family histories.

As to the religious faith of these men, 70 were Protestants, 27 were Catholics and 3 were Jews. They came from families who were economically in comfortable circumstances.

In the literature on the subject of alcoholism, there is one outstanding trend of thought which has been increasingly emphasized

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during the past few years, namely that alcoholism is a symptom and a result rather than a cause. Psychiatrists have become more interested in the personality of the patient and in the impulse to drink. In this respect, what can we learn from this group? The early infantile period of most of these patients had been forgotten by the informants. In only 10 was such a thorough study of the early period obtained. As infants they were prone to develop colic, did better on artificial feedings, and thumb sucking persisted into childhood. One patient, as a child, was fond of consuming large quantities of fluid; in his early teens he drank seven quarts of milk in one day. As adults, they loved to talk, were fond of singing, and were inveterate users of tobacco, indicating rather strong oral cravings and demands for satisfaction. Food idiosyncrasies, gastro-intestinal tensions and fastidious appetites were noticeable even during their hospital residence.

In considering the relation of these patients to other members of their families, the mother attachment in 37 individuals has been mentioned. Small families were fairly common; 14 were only children, 16 had only one other sibling; and naturally in these families the parent-child bond was strong. These patients from childhood were inclined to respect but fear their fathers.

There was a surprising lack of ambition and well formulated plans for life work among them; 65 were individuals who had shown a tendency to drift through life, holding a position here and there, with no great responsibility or future possibilities of advancement. Among this particular number were eight who from adolescence had been inclined to be dishonest, the passing of worthless checks being the most common example. On the other hand, 35 were men of accomplishment. There were 6 physicians, 6 lawyers, 5 executives, 3 writers of distinction, and one from each of several other professions. Among the group were 32 college graduates, although not all of this number were accomplished.

Concerning the psychosexual development of the alcoholic patient, much emphasis has been placed on homosexuality, particularly in the psychic sense. No one with psychiatric experience doubts its significance, and its manifestations in this group of men throw some light on the problem. There was a history of overt homosexuality in only 11 cases. From a physical and constitutional angle, it is of interest to note that only 3 of these 11 showed

feminine make-up, while in the entire group, the feminine make-up occurred in only 12. Material gleaned from these patients' histories points toward the psychogenic or environmental origin of homosexuality. Reference has been made to the mother attachment which was certainly fostered and encouraged by the 37 typical mothers, and out of this situation there developed a feminine identification, a dynamic factor of determined force in leading to a feminine approach to life as observed in these unfortunate individuals. Their lack of masculine security and aggression was obvious, oftentimes portrayed in a dramatized beaten attitude toward life in general. They were envious of successful males in their families and frequently admitted feelings of inferiority.

Their social relations with men were characteristic; they enjoyed the company of their own sex. Those who had been closely associated with men, in school or military service, looked back upon those periods as the happiest times of their lives. The preference for male drinking companions was noted, together with the tendency to become attached to the rough and tough type of the lower walks of life. The trends of those who developed alcoholic psychoses revealed the homosexual conflict. In the 10 cases of delirium tremens, the visual hallucinations of symbols for male genitals, together with the fear of impending disaster, were convincing evidence. In the 15 cases of acute hallucinosis, the commanding and accusing voices of the auditory hallucinations referred to a conflict on a passive homosexual basis. In those cases without psychosis, a careful psychological investigation brought forth fantasies of being assaulted sexually, of being mutilated, and in three cases which were psychoanalyzed, there were fantasies and dreams of actual emasculation. From a dynamic point of view it was significant that the passive homosexual strivings were not accepted, but were definitely rejected and associated with anxiety and fear.

In their relations to members of the opposite sex, there were striking over-compensations to be observed. In the series there were 41 who had to have many women in their lives. At puberty, and most often under the influence of alcohol, they began to have sex relations, for the most part with prostitutes. This urge continued into adult life and after marriage the Don Juan strivings persisted. These sexual affairs were purely sensual and in a sense autoerotic. There was no tender or lasting regard for the women

and frequently the experiences were to be interpreted as merely boasts of the individual's sexual prowess. The inability to sustain normal sexual relationships with socially acceptable women, the frequent occurrence of ejaculatio præcox, and the inability to perform the sexual act without the aid of alcohol were proofs of the fundamentally weak heterosexual drive.

Of the 72 married men in the series there were 19 who married women who were obviously inferior socially and intellectually. One married a prostitute, another married a woman of questionable character after a day's acquaintance, while another married a veritable stranger in order to collect a trifling wager from a drinking mate. With such illustrations, it is not surprising to find most unhappy marriages. There were stories of quarreling and bickering, and in 11 instances, the patients were physically cruel to their wives, noticeably at the time of the partner's pregnancy. Toward their children, an attitude of indifference or jealousy was prevalent.

Pathological jealousy, which has been thought to go hand in hand with alcoholism, was not so common in this group; perhaps it would be more frequently met with in men of different social strata. It was a particularly strong factor in the 14 men who were divorced and in these men an interesting repetition of a pattern was apparent. In separating from a wife who was actually unfaithful, the man would either be involved at the time with another woman, or later choose to marry a woman of quite similar character. The cooling ardor and the occurrence of impotency after marriage led to marital infelicity and further philanderings. In this group, the tendency to become pugnacious while under the influence of alcohol was noted.

For the entire group, the average age to begin drinking was 18. Many started earlier: one at 9, six at 14, nine before 16, 29 at 17, 33 between 17 and 20, showing that 78 had begun to drink to excess by the age of 20. Even at this early age, the features of pathological drinking were present. Solitary drinking often marked the beginning; and for those who were introduced to alcohol through the occasional temperate social glass, the solitary consumption of large quantities immediately followed. Those given to periodic sprees were inclined to frown upon social drinking, especially during the too infrequent periods of abstinence. Following moderate drinking at a dinner or social gathering, the individual usually

continued to imbibe alone until he reached a state of actual intoxication. During bouts and sprees there was a noticeable neglect of proper nutrition and water intake. The use of alcohol in these cases differs widely from its use by many people who enjoy an occasional glass. The pleasant social drinking sinks into the background and a sort of craving for the anaesthetic effect becomes paramount. The amount of alcohol consumed daily varies a great deal. The average maximum consumed during 24 hours was one quart of whiskey. In the older patients it is remarkable how little tolerance exists; oftentimes only small quantities induce intoxication.

In young men and particularly at the time of puberty, boasting about drinking is observed. Drinking becomes an accomplishment and even among older men, the alcoholic speaks of himself as a "two quart per day man" and of a weaker drinking companion as a "one quart man." Unfortunately there is a close association between the deference paid to prowess in drinking and prowess in the sexual field, as pointed out by Abraham. The alcohol, which was thought to be a sexual excitant in many cases gradually undermines potency and becomes superior in its pleasure effect to sexual enjoyment, as pointed out by Rado.

The relationship of alcoholism and especially alcoholic psychoses to other types of mental disorder has been discussed by many writers. In this group there were 55 diagnosed as alcoholism without psychosis, 12 as psychopathic personality with alcoholism, making a total of 67 cases that were not psychotic. These 67 patients had certain characteristics in common. They were impulsive and unable to postpone gratification. There was a craving for the blissful state of infantile omnipotence which drinking induced in these narcissistic individuals. One man, in all seriousness, criticized his wife's unsympathetic attitude. "She had known no drinking people and did not know how to make me more comfortable during and after a spree," were his words, which were typical. The lack of social feeling and consideration for others, together with the above-noted characteristics, suggest the constitutional psychopathic type of personality. One frequently sees a man with the combination of valuable personality assets and the tragic liability, as manifested in alcoholism. A more careful study of the underlying psychopathology in each patient reveals a more serious

problem than the more obvious behavior and facts would suggest, and in turn leads us to a re-evaluation of prognosis and treatment.

The following two cases are presented as illustrative examples of the case material studied:

The first patient, a divorced man of 35, came to the hospital on April 15, 1925. For a week prior to his admission he was consuming 2 quarts of whiskey during 24 hours, he was involved with a woman of questionable character, and naturally he was incapacitated for work as a salesman. In the family history the maternal grandmother and a maternal uncle had indulged to excess in alcohol. Members of the family were accomplished and capable. The patient was the older of two children, and his birth and early development were normal. Being precocious, he learned to play the piano at four and at the same time began to read widely. He was physically healthy and his progress in school work was steady. From childhood he was bold, direct and daring; he was a leader, and in his classes he was a popular favorite. At 14, the time of puberty, he began to frequent saloons and although under age, he entered the front door of public drinking houses and was served. At this time his drinking was considered by him to be a manly gesture. He was forward sexually and in his teens began sexual relations with prostitutes. At 19 he entered college. Learning was easy for him, but he did not apply himself diligently. He was twice expelled on account of drunkenness. Upon finishing his college work at the age of 24, he entered upon a career as a salesman. He was successful, but changed positions quite frequently. He would terminate one position after another with an alcoholic spree. Socially he was popular. He loved to talk and was fond of playing the piano and singing in public. He smoked excessively and on occasion chewed tobacco. He was extremely fussy and finicky about his food. Toward women he was affectionate, with a sensual directness that was rarely repelled. He sought no companionship in members of the opposite sex, but frequently remarked that the place for a woman was either in the kitchen or in bed. Shortly after finishing his college work, he married suddenly a motherly but unattractive type of woman. She was five years older than the patient and from the first they were incompatible. He had sexual relations with her only when under the influence of alcohol. Within a year after the marriage, he lost interest in his wife, finally divorced her, and turned to many women for his sexual pleasure. These women took most of his money and he was usually very dependent upon a woman with whom he was having an affair.

For 10 years prior to his admission his sprees became increasingly frequent. He was finding difficulty in getting work. While intoxicated he was insulting and frequently got into fights. He never had a delirium, but at times he felt terror-stricken, could not sleep and kept his brother all night in a room with him, with the lights on. During the five years before his admission, he was living with a woman who wished to marry the patient. In his sober moments he did not think of marriage, but on a spree he was mildly enthusiastic. His elaborate plans to marry were interrupted by relatives and friends, who persuaded him to come to the hospital.

He was a tall, handsome man of athletic build and masculine make-up. The physical examination, together with the laboratories studies, were essentially negative. He was able to start with a full schedule of occupational therapy, physical education, and social activities. He was very fond of golf and tennis and he always wanted more physical exercise than others. Within three weeks he had gained in weight, his feelings of being a failure gave way to a philosophy of lightheartedness and he was happy in the hospital environment. He was frank in admitting that he never knew why he drank, and was also truly curious to understand his inner motives. It was decided by the staff of the hospital that he was a suitable patient for psychoanalysis and after his first two months in the hospital this therapeutic procedure was begun. Immediately his reaction was one of defiant submission. He made light of the treatment, gave long dissertations on food, told amusing stories of his sexual prowess and produced ridiculous fantasies. Within a month his attitude changed to one of dependence; he asked advice about all matters in his life, including his desire to marry the previously mentioned woman. He sought direction in smaller things pertaining to his schedule. He gained insight into this dependence and understood the compensatory nature of hs defiance and boastfulness. For many months he brought forth and worked with material relative to his passive homosexual impulses. Before the first psychoanalytic hour there was a dream of having passive homosexual relations with another patient, a physician. Then came the story of strong homosexual impulses which he had fought against; there was no history of actual homosexual relations. Since childhood the impulses manifested themselves in fantasies and dreams and were unusually strong when he was intoxicated. At the same time there was a conscious attitude of disgust for homosexuality. He elaborated on his masochistic fantasies of being tortured and submitting to sexual assaults. He recalled that he had nearly taken his own life by demonstrating the act of hanging to some of his friends. Reluctantly he admitted that masochistic fantasies accompanied his masturbation during adolescence. He disclosed and worked through a strong emotional attachment to his mother and an unreasonable hostility toward his father. The latter emotional attitude had interfered with his progress as a salesman. He could not tolerate authority, but wanted to be his own boss, and this complex was at the basis of his frequent changes in positions. During the time of the unburdening of his memories and fantasies of a hostile character, he received minor injuries while playing games; these were psychogenic accidents on the basis of a self-punishment, in reaction to accompanying feelings of guilt.

His disgust for women as companions was related to a strong fear associated with his incestuous attachment to his mother. He escaped any anxiety and fear by falling in love with women of inferior station. After 10 months in the hospital, he brought himself to the point of making a definite break with the woman already mentioned. At the same time he began to commute from the hospital to his work and took over the expense of his treatment. He discovered an interesting relationship between his beginning to drink and a jealousy of his younger sibling. At this time, *i. e.*, when he was 14, the younger brother was born. Most of the attention of his mother was turned on the new

arrival. He felt deserted, lost interest in his school work and as previously noted, began to use alcohol.

He was sufficiently interested in his treatment to remain more than two months after the expiration of the inebriate commitment. He left the hospital on July 1, 1926; he was under treatment for 14½ months. Since his discharge he has been most successful as a salesman, remaining with the same organization; he is happily married and he does not drink.

The second patient, a married man of 40, a chemist by profession, was admitted on February 1, 1930. There was a history of excessive drinking, which during the past year had incapacitated him for work.

The patient's father and three maternal uncles were prone to drink immoderately. The mother was most indulgent, and it was to her that the patient went for help and comfort. He was the older of two children. His birth and early development were uneventful. He was bright and did exceedingly well in school. He was pampered and overprotected by his mother, and when sent away to school at the age of 15, he complained bitterly of homesickness. He and his younger brother were devoted, and they were sent to school together. At 15, he began mutual masturbation with his brother, who was two years younger than the patient. In school they did not mingle freely with other boys and were far from being popular. When he was 18, he and his brother began their college work. They were disappointed over not being invited to join a fraternity and they turned to alcohol for solace. There were frequent sprees during college, but the younger brother fell in love, married while in college, and in a sense deserted the patient, who continued to derive his greatest satisfaction from his cups. Upon graduating from college, at the age of 22, he returned to his native city where his social and professional contacts were above the average. For a year he did well as a young chemist, and in the meantime he became acquainted with a young lady of his own social standing. Their friends' and her desire for marriage became obvious, and in a state of fear and panic, he suddenly severed all relations and came to New York City. This was the only woman of his own class to be associated with him. In New York City he became attached to a chemical manufacturing establishment. He showed an inventive genius, but as he was frequently intoxicated, he gave away many of his ideas without any recognition. He was advanced to a position of responsibility and for five years prior to his admission, his employer hired a man to supervise him and prevent his drinking, if possible. During his twenties he lived with a rowdy group of young single men whose behavior was in every way unconventional. In such a living arrangement he was very happy, but one by one his friends were married. He was lonely, and at the age of 30 he married suddenly an inferior woman whom he had known for only a few days. Within a week of his marriage, while heavily intoxicated, he went to his mother, and remembered that he wept on her shoulder. He was very unhappy with his wife, with whom he was impotent. They often quarreled and he frequently allowed himself to be beaten. Occasionally he consorted with prostitutes, but with no satisfaction, as he suffered from ejaculatio præcox. He continued to do excellent work, but he was

chagrined by a tremendous reduction in salary in 1929, the year before his admission; he felt there was sufficient cause to average a quart and a half of whiskey per day. On three occasions he was in general hospitals for the treatment of acute alcoholic intoxication. He became physically run down, showed marked restlessness, and talked of suicide. As usual, he went to his mother, who persuaded him to come to the hospital.

His physical condition was poor. He appeared many years older than the age of 40. He was undernourished, exhausted, and tremulous. The laboratory tests were essentially negative. Constitutionally he was of masculine build. Mentally he was discouraged but somewhat resentful of being under treatment. With an irritable and critical attitude, he told freely of his inebriety and his inability to cope with the impulse to drink.

The treatment was directed, at first, toward a physical rehabilitation. He was given a nutritious diet with abundant fluids. Daily massage and sedative baths were helpful in controlling the sleeplessness and tremulousness. For the first three months he was placed on a schedule which allowed two rest periods during the day. At no time in his life had he learned to play, and he was given instruction in golf, tennis and other competitive games. In occupational therapy he did excellent metal work, an activity which he carried as a hobby into his life out of the hospital. Reluctantly he undertook a psychoanalysis which began three months after his admission. He was typical of that unfortunate group who presents a beaten attitude toward life. In every sphere of his life he managed to deny or punish himself. This was carried into his treatment. With an opportunity to understand himself more thoroughly, he left the hospital at the end of a year, before his psychoanalysis was completed. He distrusted all physicians, as he had his own father, a physician who drank excessively and was most unsuccessful professionally. His father had frequently threatened him before the age of six. He was told of the dire consequences of enuresis and masturbation, both of which were problems with the patient. At six, he was told in detail of the lynching of a man who was guilty of rape. At an early age he was conditioned to be afraid of all sexual expression. Under analysis he had dreams of being castrated by his father. He also fantasied that his father attempted to cure alcoholism by forcing cotton through the alimentary tract of the patient with a ramrod. He had a dream of his nails being torn from his hands as a punishment for masturbation. Up to the age of 12 he had held to the infantile theory that the woman possessed a penis. As one would suppose, this was a denial of the possibility of castration, the unconscious fear from which he never recovered. At puberty he turned to homosexual experiences with his brother. The fear of his father and his strong mother attachment led to a feminine identification which strengthened his psychological passive homosexual alignment. He fled from a suitable heterosexual adjustment and married a woman of inferior station. His passivity and self-abasement in his work have been mentioned. At times he showed a real interest in the material he produced, but he learned very little of the deeper psychological problems and conflicts. He felt confident to manage his life before any of his difficulties were fully resolved, and he left immediately upon the expiration of his inebriate commitment. He did well in his work for one year, but again resorted to drinking.

Treatment.

When the subject of the treatment of patients with alcoholism is touched upon, a note of pessimism is usually sounded in all quarters, including psychiatry. The difficulties of management, the tendency to recurrence, and the downward course in so many cases, are the reasons given for such an attitude on the part of the profession. Yet in the realm of physical disease and certainly among the mental disorders of all types, the discouraging features of recurrence and chronicity are ever present. Such obstacles have always challenged the physician to greater efforts of intensive work and study, with the hope of curing or helping those so afflicted. Any other attitude on the part of psychiatrists toward the problem of alcoholism should appear indeed inconsistent.

On the other hand, the excessive use of alcohol over a period of years by an individual with instinctive and emotional conflicts, does produce a clinical picture somewhat different from that seen in a case of psychoneurosis or psychosis. The alcohol has helped to postpone any sort of solution of mental conflict. It has been looked upon as an aid and in many patients affords a false sense of security and temporary escape from unpleasant tensions. It is true that alcohol, in this alluring way, takes the individual farther away from early psychiatric treatment, whereas the mental suffering of the neurotic or psychotic patient, without the momentary solving or postponing effect of the drug, brings him to more immediate treatment. This fact is corroborated by the present study, when we consider that the average age to begin drinking was 18 and the average age on admission was 38. Thus a long period of time elapses during which the individual learns to depend upon and tenaciously adhere to the unhappy solution of his difficulties, and naturally results in the severe degree of physical and mental involvement we meet so frequently. Another feature which brings us to the consideration of management is the average period of hospital treatment for the group. The average period was 4 months and 26 days, about one-half the time spent by the psychotic or neurotic patient who fully recovers. The insufficient period of time for adequate therapy is offset by the inebriate commitment which more and more is insisted upon.

All the alcoholic patients and especially those with an organic mental reaction require careful physical treatment. This part of

the therapy centers around the principles of rest, increased nutrition and fluid intake, and proper elimination. The patient is taken off the alcohol immediately. Rest is secured through the simple measure of putting the patient to bed. Warm wet packs and prolonged baths are beneficial to those who are acutely overactive and disturbed. These methods of producing relaxation and sleep are found to be far superior to sedative drugs which oftentimes accentuate the existing toxic state. The diet should be rich in calories and an abundant fluid intake is most valuable. During the first few days the elimination is aided by colonic irrigations. Naturally the nursing care plays a significant rôle and the directing of these measures on the part of the psychiatrist is combined with reassurance, as the acutely sick patient is quite apprehensive. The same elaborate care is not required by the patient who is not reduced physically or in whom the alcoholism is not associated with an organic mental reaction. In any case, the response is very quick and the physical restitution is strikingly good when no permanent injury of the nerve tissue has occurred.

This early period offers a splendid opportunity for observing the unconscious material which comes to the fore in the trend of the acute organic reaction. The observations and notes made at this time by the hospital physicians are of inestimable value to the psychotherapeutic work which follows.

In the hospital, the patient follows a full schedule of physical, occupational and social activities. Competitive games are popular and strenuous physical exercise has a strong appeal; occasionally the idea of " sweating out the poison " is voiced by the patient who for weeks has been in apparently good physical condition. New interests in games and sports are created; many patients, for the first time in their lives, learn to play. The strengthening and toning effect are accomplished and in the course of his physical education, the patient's mental reactions are observed and studied with him. Situations of managing aggression in athletics can be related to unfortunate patterns of behavior in the daily life. As a group, these patients were prone to receive minor injuries such as head and face wounds in games and cuts with sharp tools in occupational therapy. These were explained superficially as accidents, but on further investigation with the patient, were found to have their origin in a self-punitive drive. The attainment of

improved muscular coordination in physical training builds up security and confidence.

Occupational therapy serves the useful purpose of engaging the patient's interest in constructive activities. As a group the patients prefer carpentry and metal work. Starting with wood in the rough and carrying it through to the completion of a piece of furniture is looked upon as a satisfying accomplishment. Metal and wood work appeal quite often, as the patients consider them employment of a masculine nature. The learning of crafts stimulates new interests and hobbies which, in the case of many patients, are continued after leaving the hospital. The ways of going about a task and the reactions to the instructor's advice and criticism afford many psychological situations for study of the patient's personality equipment.

The social life is made more pleasant through informal gatherings, card games, dances and concerts. Every effort is made to furnish a natural and wholesome environment, to which the patient adjusts without the use of alcohol for a period of months, preferably a year.

While directing these therapeutic measures, the psychiatrist is also working with the individual. Any physical conditions such as foci of infection are corrected. Any physiological difficulties such as digestive disorders and frequent colds, which have been used in the past as rationalizations for drinking, are dealt with in such a way as to teach the patient a way of future managing.

The psychiatric interviews are frequent and the benefit derived depends upon the interest and curiosity of the patient in working out his inner problems. The alcoholic patient frequently presents the baffling mask of a breezy, genial and social nature, which is misleading. With those patients who have accomplished things in life and whose relations to reality are for the most part strong and of an adult character, an attempt is made to penetrate the mask. Through perseverance and a knowledge of the underlying psychopathology, the psychiatrist aids the patient in acquiring an emotional insight. Three of the patients were psychoanalyzed. In addition to the individual benefit, much was gained in the contributions to the methods of study and treatment of others.

The reeducation program extends into the period of the patient's adjustment after leaving the hospital. Toward the latter part of

the hospital period, the patient is encouraged to visit his home and gradually resume his life's work. Absolute abstinence is insisted upon. Occasional but specified visits to a psychiatrist over a period of a year or more, are essential for the best results. In this guardian rôle, the psychiatrist plays the part of a sympathetic and understanding friend.

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STUDY OF A CASE OF CYCLIC PSYCHIC DISTURBANCES ASSOCIATED WITH MENSTRUATION.*

By WILLIAM A. HORWITZ, M. D., and MEYER M. HARRIS, M. D.

The physiological changes that accompany the menstrual cycle, although usually unassociated with any apparently marked untoward effects, may in certain cases be accompanied by severe disturbances. A careful study of these conditions may give one information regarding important physiological mechanisms. It is indeed possible, and one might safely say probable, that in some cases the disturbances observed are psychic in origin. There is strong evidence, however, that in others organic factors play an important rôle.

Brierre de Boismont,[1] in 1842, wrote an interesting monograph on the subject of menstruation in relation to the mental state. He pointed out that the menstrual period is frequently associated with various illnesses, feelings of animosity, self punishment, etc., for which the individual cannot account subsequently.

Icard,[2] in an extensive study of the literature regarding the psychic status of woman during menstruation, details the occurrence of various psychotic disturbances such as pyromania, dipsomania, homicide, suicide, nymphomania and others.

In 1912, Haffner [3] published an interesting and extensive article in which he reviewed the literature and reported clinical studies regarding the relation between menstruation and nervous and mental illness. It is unnecessary, therefore, to duplicate such a detailed review for the purpose of this paper.

In 1858, Schlager,[4] in an investigation on menses and psychoses, pointed out, among other things, that psychoses may show exacerbations during menses although very frequently no causal relationship exists.

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Sutherland,[5] as a result of a study of 500 cases, stated that although in the latter part of the 19th century the importance of menstrual disturbances as an etiological factor in the psychoses was questioned still he believed there undoubtedly were cases in which menses played a rôle.

Powers,[6] in 1883, outlined the following theoretic requirements for the so called "menstrual psychosis":

(1) The paroxysm must be regular and related to the menses.

(2) There should be free intervals between the paroxysms.

(3) There must be a characteristic psychosis and not merely ordinary mild disturbances occurring in nervous women.*

She also described "transition forms" as follows:

(1) Periodic forms which however did not always coincide with the menstrual periods.

(2) Periodic forms without free intervals but with exacerbations at the time of the menses.

(3) Abortive forms which occur with the menses but which do not reach the degree of a psychosis.

Hegar,[8] in 1901, was inclined toward the view that "menstrual psychosis" should be called "Wellenpsychosis" or "wave psychosis" since the menses constituted only the most apparent and tangible sign of the physiological wave-like changes which occur in women.

This broader view point is in keeping with recent knowledge of the hormonal changes in the body accompanying the menstrual cycle.[9, 10]

The effects of these hormonal changes are undoubtedly important in the pathogenesis of various disturbances reported as occurring with the menses in certain cases, as, for example, epilepsy,[11, 12] transient edema,[13, 14, 15] agranulocytosis,[16] etc.

It is questioned by some observers whether a menstrual psychosis as such exists.[17] They believe that the menses are merely a precipitating factor in the psychosis in a predisposed individual and in many cases the family history would tend to support such a view.

* Tobler [7] reported that out of 1020 women examined only 16 per cent felt as well as usual at the menstrual period. The others were usually unwell in some way and unenergetic, although there were some who were more energetic at this period.

This paper deals with a study of 2½ years duration of a patient who since the age of 12½ years had had recurrent attacks of psychoses which were related to her menstrual cycle.

Patient E. P., a 16½ year old school girl was admitted to the Psychiatric Institute at the age of 14 (October, 1932), at which time she already had had repeated mental illnesses for one and one-half years, dating the onset of the present illness to the age of 12½. The hereditary background is unfavorable in that her father had been psychotic and was twice admitted to state hospitals, once diagnosed "manic-depressive" and once "dementia præcox." He died of tuberculosis. One brother is in Sing-Sing, his third conviction. Another brother was formerly a behavior problem and had a court record for juvenile delinquency. One sister is a behavior problem and another is a stutterer.

When seven years old, the patient was observed to drop objects from her hand and to have involuntary movements of the right hand and leg. This lasted several months and recurred each year until she was 12 years old. At two hospitals this condition was diagnosed as Sydenham's chorea. Except for this, her past history was essentially negative.

Because of these repeated illnesses, she was made the favorite by her mother who pampered her. Nevertheless, she was energetic, cheerful, interested in school and active in play. Despite the annual illnesses which caused her to lose one or two months out of each school year, she passed her grades regularly and was in 9A at the age of 14.

At the age of 12½ (January, 1931), six months after her last attack of chorea, she became mentally ill for the first time. She began to cry, worry about her studies and refused to go to school. She was depressed, retarded and afraid to leave the house. She sat in one place, did not talk except occasionally to answer a question and ate little. This condition lasted eight days. On the ninth she was well. She dressed herself, ate and spoke as formerly and eagerly returned to school.

According to the history of the mother and sister, these short, depressed, retarded states returned at about monthly intervals, each lasting eight days and promptly clearing up on the ninth. She had four such attacks before her first menstrual period at the age 13 years, at which time she had a fifth attack. From then on she continued to have similar short depressions with each menstrual period until the one just prior to admission to the hospital.

Up to this point she had had about 15 such attacks, recovering generally about the ninth day. In September, 1932, at the age of 14, she had her usual attack with the onset of a menstrual period but instead of recovering on the ninth day she became noisy and excitable. She awoke at midnight, rushed from room to room, switching the lights on and off. She ransacked the drawers, tore her clothing, struck and spit at her sisters and threw objects out of the window. For the next few days she talked incessantly, refused to remain in the house, and for four nights she did not sleep. She said that she had a large sum of money in the bank and wanted her mother to get it for her. She talked about a Tammany club leader, about Governor Roosevelt and

continued to read the names off an election poster across the street. This disturbed state lasted for an additional eight days, following which she recovered. She then remained well for more than two weeks and was referred to the hospital by a social service agency because of this previous disturbed episode.

When admitted to the hospital on October 18, 1932, she was cooperative and pleasant but within a few days she began to complain of headache and earache and became dull, listless and untidy in appearance. She became petulant, kept herself apart from the other children or picked quarrels with them. This behavior lasted for about two weeks until a day or two after her menstrual period when she quickly became excited, rushing about the ward, breaking the furniture, giggling and tearing her clothes. She was elated, laughed and sang. She again spoke of the prominent people she knew. She said she was wealthy and had imported expensive clothes. She had to be removed to the adult disturbed ward where she continued to scream and talk incessantly. Here she continued to express grandiose ideas, was distractible and showed a flight of ideas with rhyming and *klang*-association. A sample of her stream of thought in this disturbed state is: "You know me. I'm very happy. Mr. Maloney, you are a boloney. Mrs. Crane, you are insane. Mrs. Levy, you are a dandy, you brought me candy when I was in camp. President Roosevelt, I knew you'd win. I know Hoover—Jimmie Walker." This disturbed state lasted about two weeks. She then rapidly became quieter and in two or three days became respectful, obedient and cooperative but mildly depressed. After several days more she appeared completely well, *i. e.*, she was neat, played with the other children and attended school. This whole attack lasted four weeks.

Two weeks later she began another attack and since then these have recurred at intervals of two weeks to two months except during a prolonged period of thyroid therapy, during which time she was apparently well. In all, she has had about 30 attacks, including those prior to her entrance to the hospital. All the attacks, except the first four which had occurred before the catamenia were established, were associated with a menstrual period. Most of them began in the pre-menstrual stage, a few either during the period or a day or two after menstruation ceased. The onset was similar, being ushered in by prodromata consisting of a feeling of sleepiness, untidiness in appearance and complaints of headache and backache, this being followed by mild behavior disturbances such as silliness, flippancy and seeking of attention for various physical complaints. The prodromata lasted a few days and were replaced by a short period of depression followed by a disturbed, elated state of a few days or a few weeks duration. On two or three occasions the disturbed state did not appear and only the depression recurred. The menstrual periods occurred irregularly at intervals of two weeks to two months, each period accompanied by a psychotic episode.

Physical examination on admission revealed an individual of short, dysplastic habitus, resembling her mother and one sister in physical constitution. Complexion was pasty sallow with a mild acne of the face. Despite the history of repeated attacks of chorea there was no evidence of cardiac involvement. The rest of the physical examination was negative.

Urine and blood studies including a Wassermann test were normal. Glucose tolerance tests, 60 gms. glucose orally gave the following results:

June 6, 1930, fasting blood sugar = 89 mg./100 cc.

½ hr.	111
1 hr.	151
1½ hrs.	138
2 hrs.	136

April 27, 1934, fasting blood sugar = 97

½ hr.	170
1 hr.	195
2 hrs.	127

Blood cholesterol = 247 mg./100 cc. which fell to between 150 to 170 on thyroid medication.

X-ray of the skull showed large dilatations of venous channels, which were considered normal by the rœntgenologist.

X-ray of the long bones at the age of 15 years showed fusion of practically all the long bones.

Owing to the close relationship between the psychotic episodes and the menstrual cycles, the effect of the administration of available potent endocrine products known to be directly related to the sex cycle were observed. Any ameliorating or aggravating influence of such products upon the clinical course might give an indication of the particular hormone or hormones which were involved.

Antuitrin-S Administration.—Antuitrin-S (the gonadal stimulating hormone obtained from pregnancy urine) was administered hypodermatically in varying amounts (100 to 300 rat units daily) at three different periods as seen in the chart.

It is difficult to determine whether there was any effect upon the duration of the psychotic episodes since they were not all of equal duration. The nature of the psychotic episodes however remained essentially unaltered.

Theelin Administration.—Theelin was administered hypodermatically both before and during a psychotic episode in doses varying from 50 to 300 rat units as seen from the chart. This did not alter the nature of the attack. (It is intended to repeat the theelin experiments using larger doses of the hormone.)

Thyroid Administration.—Since the patient's basal metabolic rate ranged from — 14 per cent to — 34 per cent, three grains of thyroid were given daily over a period of two months. During this time the patient had a menstrual period accompanied by very mild psychotic symptoms. When the thyroid was discontinued the basal metabolic rate, which had risen to a normal level, again dropped to — 25 per cent and with the next menstrual period a severe disturbed state lasting about one month occurred. Ten to fifteen grains of thyroid daily administered during this disturbed state produced no beneficial effect. It was then decided to administer sufficient thyroid to raise and maintain the basal metabolic rate at a positive level. For six and one-half months an average of

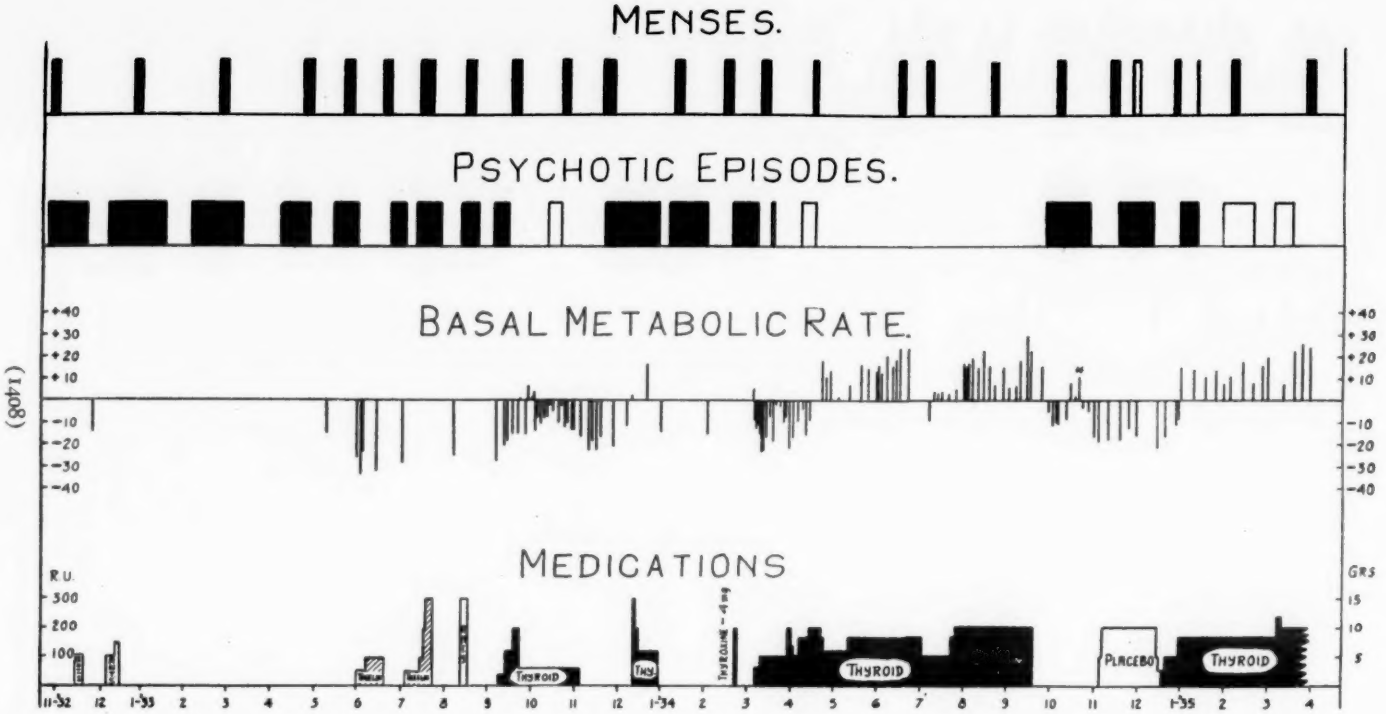


CHART.—Showing the Relation Between Menses, Basal Metabolic Rate, Medication and Psychotic Episodes.
(*Note.*—Clear rectangles indicate occurrence of only mild prodromal symptoms.)

eight grains of thyroid daily was given so that for the last four months of this period the basal metabolic rate averaged + 15 per cent. During this period of six and one-half months, patient had five menstrual cycles without a psychotic episode. At the end of this period, the thyroid medication was discontinued and the psychotic episodes recurred with the next two menstrual periods. During the second of these, she received tablets resembling thyroid as a placebo. Thyroid therapy was again instituted. The first menstrual period following the resumption of this therapy was accompanied by only a mild disturbed state lasting about 10 days. Since then, she has had four menstrual periods free from either states of depression or overactivity, only mild prodromal symptoms appearing at about the time of each menstrual period. The relationship between the medication, basal metabolism, menstrual periods and psychotic attacks are shown in the chart.

Discussion.

It has been pointed out by various investigators that a low basal metabolic rate does not necessarily indicate the presence of a hypothyroid state. We are inclined to believe that the low basal metabolic rates in our patient was probably not due to hypothyroid function since epiphyseal union had taken place at least at an early normal age period whereas one would expect an early hypothyroid state to be accompanied by delayed epiphyseal union.

The therapeutic effect of the administration of large doses of thyroid does not necessarily indicate the existence of a hypothyroid state but may merely represent a favorable pharmacological * action of the substance.

The family history of mental illness and perhaps the presence of chorea in early childhood point towards the possibility of some non-demonstrable organic bases for the psychotic episodes; the physiological effects due to the hormonal changes associated with the menstrual cycle producing this disturbance in mental function because of the organic involvement. However, the possibility that the mental disturbances may be due to some endocrine dysfunction, perhaps of the pituitary, should be kept in mind.

How the large doses of thyroid bring about the ameliorating effect requires further investigation.

* It may be well to keep in mind the possible rôle of antithyrotropic hormone to account for the low basal metabolic rate.

Summary and Conclusions.

1. A study of two and one-half years duration of a patient having psychic disturbances related to the menstrual cycle is reported.

2. Antuitrin-S and theelin administered hypodermatically in various amounts and at different periods did not appear to influence the nature of the mental disturbance.

3. Continued oral administration of large doses of thyroid brought about a marked amelioration in the clinical picture with freedom from psychotic attacks.

4. Discontinuation of thyroid administration and substitution of placebos was followed by a return of symptoms which disappeared on further thyroid treatment.

5. The significance of the effect of thyroid administration is discussed.

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DISCUSSION.

DR. R. G. HOSKINS (Boston, Mass.).—I should like to ask the reader whether he made observations on the quantity of urine during the periods when favorable therapeutic results were obtained, and when not, and on the total nitrogen in the urine. This is a subject that we have been interested in for a number of years. In the Worcester State Hospital we have tried to determine what are the significant indications prognostic of favorable results from thyroid medications. In our experience the chief favorable indications consist of a relatively scanty urine, relatively scanty total urinary nitrogen, usually constipation, commonly a mild secondary anemia and, of course, a depressed oxygen consumption rate. I wonder to what extent Drs. Harris' and Horwitz' experience conforms with ours.

DR. LLOYD H. ZIEGLER (Albany, N. Y.).—I wish to ask a question and also to contribute just a bit of observation about some patients that were somewhat similar. I should like to ask if the temperature of the patient was taken regularly, also whether any special note was made of the respiration rates. Could one consider stimulating respiration as a therapeutic method equivalent to giving thyroid?

I have observed in four or five girls, especially in the five or six months before the onset of their menses, that they would have some kind of psychotic episode at monthly intervals, corresponding to the date when the menses should appear. These disappeared after the menstrual periods had become well established, and so far as I know such episodes did not reappear later in life. These patients behaved not unlike the patient described by Dr. Harris and Dr. Horwitz, except that the disturbance lasted only a day or two and was characterized by a feeling of anxiety about something that wasn't very certain, a rather outstanding restlessness, and a tendency to giggle or laugh sometimes.

DR. MEYER M. HARRIS (New York City).—I am sorry that I have not the figures here to answer Dr. Hoskins' question, but there were a number of studies made in regard to hormones, urinary output, and so on. The difficulty encountered in these studies was that at the periods when we were most anxious to obtain total collections, we were frequently unsuccessful because of the disturbed and uncooperative condition of the patient. We discontinued the studies of hormone excretion for that reason. However,

there were several periods when the hormone excretion was studied, but we have not the figures to give them to you at this time. As far as I can recall nothing very unusual was observed.

In regard to the endocrine therapy, it is a fairly well known fact that thyroid may be effective therapeutically because of its pharmacological action rather than its endocrine effect; that is, the effect is not due to a replacement of a deficient supply of the hormone. There is no evidence of thyroid deficiency in this case so far as we can tell. It is still a question, however, whether in a case like this one has treated a thyroid deficiency or has simply obtained a favorable pharmacological effect. This consideration has been a point of main interest to us and will be a subject for further investigation. The case is still under observation.

The first part of the study was concerned, as was quite obvious, with an attempt to gain some insight into the mechanism of the relation of the menstrual cycle to the psychotic period. Attempts were made to gain information on this point by the use of some of the hormones by determining whether they would precipitate, break up, or prevent an attack.

The second part of the study was in relation to the low basal metabolic rate. A discussion of the complicated relation of the thyroid to the metabolic rate would not be permitted by the short time at my disposal.

The question in regard to allergy is something which one must consider. I don't know whether it is an allergic state wherein the thyroid administration has produced a favorable pharmacological effect. I am not inclined to believe, however, that we are dealing with an allergic phenomenon in the case presented.

INFANTILE AMAUROTIC FAMILY IDIOCY.

With Megalocephaly and Cerebellar Atrophy.*

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The outstanding clinical and pathological features of amaurotic family idiocy are well known to every neurologist and neuropathologist, and reports continue to appear at regular intervals in an already profuse literature. New cases, when carefully studied, are nevertheless an increment to our knowledge of this subject. Although the case which is herewith submitted undoubtedly belongs to the Tay-Sachs infantile group, it presents a number of distinctive features which merit discussion and analysis. In the first place, it is unique because the cerebrum, which weighed 2300 grams, is probably one of the largest brains reported in this disease. In contrast, the cerebellum is found to be exceedingly small, a condition which further serves to break down certain arbitrary boundary lines between the true infantile form and the type described by Jansky [1] and Bielschowsky.[2]

Secondly, on the clinical side there were manifested the tonic phenomena which simulate the picture of experimental decerebrate rigidity which Hassin [3] regards as of diagnostic value.

Thirdly, unlike the situation in most cases, this child was never emaciated but continued to grow in height and weight to the very day of his death.

Lastly, along with the brain, the eye and optic nerve were obtained at autopsy, making it possible to study the pathological picture of the entire visual system from the retinæ to the striate cortex.

Case Report.

The patient was born of a Polish-Jewish father, age 30, and a Lithuanian-Jewish mother, age 29, not related. A rather comprehensive genealogical study through four generations was made of 114 individuals on the paternal side

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* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

and 54 on the maternal. Of these 168 blood relatives, none presented a history or objective evidence of anything suggesting amaurotic family disease. On the paternal side there was found a trend toward malignant hypertension in the older groups and some presenile diabetes, but these elements were probably no more dominant than they are in the average Jewish stock.

The boy, an only child, was born December 29, 1931; there were no difficulties during delivery. The natal weight was about 7½ pounds and the height was 50 centimeters. He was breast-fed and had supplementary feeding of certified whole milk and dextro-maltose. During the first six months growth and development appeared to be normal in all respects. At four months he was able to sit up without being propped, he controlled his head without difficulty and dentition came on in regular order.

Not until he was about 10 months old was it evident that normal development was halted. He could no longer hold up his head, he could not sit up, and he did not reach for his toys or food. The postural defects continued to be more pronounced; there now developed a generalized hypotonia of such degree that a diagnosis of birth injury to the cerebellum was made.

At 19 months the cherry-red spot in the maculæ and optic atrophy were detected, thus making the diagnosis. By this time the general hypotonia gave way to reflex excitability, such as facial myoclonus, spasm of the larynx and trismus of the jaws. Noises startled him, bringing on cyanotic attacks and generalized extensor tonus. There was little or no voluntary activation, and the child lay passively on his back, occasionally giving forth a feeble outcry when the head or limbs were manipulated. The head, which was rapidly enlarging, was held in slight extension, the left arm alone being slightly flexed at the elbow. The hands were tightly clenched. All tendon reflexes were symmetrically hyperactive, the abdominals were not elicited, and the plantar response was a slight flexion of all toes. The pupils were dilated and there was an internal squint and spontaneous nystagmus. Keeping in mind the observations of Hassin [3] and Van Bogaert,[4] who studied tonic reflex reactions in amaurotic family idiocy, attempts were made to demonstrate true Magnus-DeKleijn phenomena. Rotating the head to the left caused only a feeble extension of the slightly flexed left arm, but no appreciable reaction in the limbs on the contralateral side. Turning the head to the other side made little or no difference in the postural formula, and the general appearance suggested the generalized extensor tonus of the experimentally decerebrated cat. Since these responses did not satisfy the postulates laid down by Walshe for true decerebrate rigidity in man, the reactions were looked upon as being atypical but suggestive.

Although the fontanelles closed normally at 18 months, three months later the sutures began to widen, and the head rapidly enlarged so that from the 21st to the 29th month the circumference of the skull increased from 20¾ inches to 23½ inches. The cranial bones in rœntgenograms were found to be very thin and the parieto-occipital suture gaped widely. To make certain that this condition was not an obstructive internal hydrocephalus, block tests were performed and dye injected into the ventricles was recovered at the lumbar

locus within 18 minutes. The spinal fluid pressure was 22 mm. of mercury. The cell count was normal and the protein content was not increased.

In spite of all this the boy continued to gain weight and to grow in height. At no time did he show evidence of malnutrition, and dentition was not retarded. Only on one occasion was there noted a true convulsion, but facial twitching, spontaneous nystagmus, cyanotic attacks, sensitivity to noise and generalized hypertonus continued to the time of death. Feeding in the last two months became increasingly difficult because of the jaw trismus. From the 19th month, blindness was complete, and the patient lay motionless with the enormous head in slight extension, except when overwhelmed by spontaneous tonic movements. He expired with the symptoms of broncho pneumonia on June 4, 1934, at the age of 29 months.

Summary.

The patient was a Jewish infant, in whom normal development up to six months was interrupted by a progressive atonia and visual impairment. This was succeeded by myoclonic excitement at 15 months associated with generalized extensor hypertonus. Only one true convulsion was noted. There was no severe malnutrition at any time. At 19 months he was totally blind and the cherry-red spot was found in the retina. From the 21st month the head increased enormously in size. Death occurred in the 29th month.

Pathological Examination.

The organs, exclusive of the central nervous system, revealed no striking changes. The liver and spleen were not enlarged and there was no histological evidence in these organs of lipoid histiocytosis. The anatomical diagnosis of the internal organs is as follows: bilateral bronchopneumonia; acute tracheobronchitis; follicular hyperplasia and focal necrosis of the spleen and lymphoid hyperplasia of the ileum. (Dr. M. A. Simon.)

Brain and Meninges.—The dura was thickened, tense, adherent to the calvarium, and when cut released a considerable amount of slightly blood-tinged fluid. The leptomeninges were thickened, cloudy, edematous and not adherent to the cortex. Considerable fluid escaped from the subarachnoid space. The fresh brain weighed 2300 grams and was of rubbery firmness in consistency. The basilar blood vessels were collapsed, the cortical vessels moderately hyperemic. At the base the thin-walled third ventricle protruded ventrally, pushing the optic chiasma before it. The optic

nerves appeared atrophied. The convolutions were prominent with accessory folds and fissures which varied in size and produced a distorted architecture. (Fig. 1.) The sulci were very deep, gaping in general, especially at the Sylvian fissure. The cerebellum weighed 115 grams. It was quite small, compared to the rest of the brain, and showed a universal atrophy of the folds. The pons and cerebellar peduncles were small and flattened. Coronal sections of the brain revealed only moderate dilatation of the aqueduct and cerebral ventricles. The brain cut in a rubbery fashion and the white colored cortex on cut section stood out from the softer atrophic grey-colored white matter. The greatly thickened cortex measured on an average three to four millimeters in diameter. Vascular points were prominent on the cut surface.

Eye and Optic Nerve.—The posterior half of one eye was removed for examination. Grossly, the optic nerve was atrophied and grey in color. The macular region was greatly raised above the surface of the retina and appeared as a yellowish ovoid structure, 5 mm. in diameter, with an elevated margin and a pit-like depression in the center at the fovea. The yellowish color disappeared after fixation in formalin.

Histological Examination.

Representative areas of the central nervous system were stained by standard methods to demonstrate nerve cells, glia cells, myelin sheaths, neurofibrils, gliafibres, fat and collagenous and argentophilic connective tissue. Special stains for lipoids were not made for this report. The eye was embedded in both gelatin and celloidin and cut in serial sections for the study of the changes in the macula lutea.

Because of special interest, the changes in the cerebellum and the visual system will be described separately.

The leptomeninges were thickened in all regions with a loose proliferation of fibroblasts. These contained fibrils which stained with both the Van Gieson and tannin silver stains but the amount varied in different regions and showed no correlations with each other. The pial blood vessels were widely dilated and exhibited some thickening of the adventitia. In the meshes of the pia-arachnoid, round cells, red blood cells, immature macrophages or other cells of meso-

thelial type and especially *gitter*-cells were present. Many of the *gitter*-cells contained black pigment granules.

The ganglion cells throughout the central nervous system were changed in the manner characteristic of this disease. (Fig. 2.) This consists essentially of ballooning and distortion of the cell body or cell dendrites or both, with a complete loss of Nissl granules. In some cells a remnant of the Nissl substance broken into dust-like particles may persist around the nucleus. The nucleus may be displaced into the edge of the cell or into the origin of a dendrite, and the major portion of the cell is filled with lipoid material enmeshed in the spongioplasm. The lipoid is thought to be a lecithin or a phosphatid-like substance.

In the cortex the architecture was greatly distorted, due to a varying degree of cell defect not only in different regions but in different layers of the same region. In the extracortical regions a severe cell loss was present only in the lateral thalamus and pulvinar. The degree of lipoid accumulation was less marked in the substantia nigra and the nucleus supraopticus than in most of the other cell groups. Ballooning of the apical dendrites was a prominent feature in the pyramidal type of motor cell in the cortex and in the stratum lucidum of Ammon's Horn.

The fat staining reaction of the lipoid in the ganglion and glia cells demonstrated the different color tone emphasized by Spielmeyer,[5] that is, a light rose red in the ganglion cells and some fixed glia cells, a deeper red in the *gitter* cells, and the deep-red reaction of neutral fat in the small capillaries and blood vessels. The lipoid stained intensely black with iron hæmatoxylin in some regions (*i. e.*, Ammon's Horn). This was most striking in the Spielmeyer myelin sheath stain on frozen sections.

The glia cells in the Nissl stain were present in increased numbers everywhere and many varieties of progressive forms especially protoplasmic macroglia were abundant. Neuronophagia of ganglion cells was a striking picture in the post-central gyrus, but also occurred abundantly in the frontal and parietal cortex.

The cortex in all regions was almost completely demyelinized. The affinity of the lipoid for iron hæmatoxylin in the ganglion cells gave a curious reversal of the normal myelin sheath picture. The tracts in the nervous system which retained to the greatest degree their myelinization were the posterior columns and medial lem-

niscus, the fasciculus solitarius, the olivo-cerebellar tract, the dentato-rubral cerebellar pathways, the posterior longitudinal bundle, the lateral lemniscus, the tectospinal tracts, the fasciculus retroflexus and a part of the retrolenticular segment of the internal capsule. All other tracts were almost completely demyelinized, especially the pyramidal tracts; the spino-cerebellar and spino-thalamic tracts were somewhat less affected.

In silver preparations the axis cylinders were found to be intact where the myelin fibres were preserved. In the cortex, a marked reduction of neurofibrils, especially the tangential fibrils, was present. In addition, the ganglion cells showed displacement of the neurofibrils to the edge of the cell by the lipoid, and argentophilia of the nucleus. Fragmented, granular changes of the fibrils were present in some cells. In places the fibrils were thickened and nodular. In general, the axis cylinders were better preserved in a given area than the myelin sheaths.

Gliosis of the entire central nervous system was marked, especially in the cortex, thalamus, basal ganglia and central grey matter of the pons. In addition the well-known border gliosis of the molecular layer of the cortex and along the sub-ependymal regions was observed. The gliosis in the cortical grey matter was irregular, very dense, and consisted of both thin and coarse fibres.

Giant astrocytes with course fibres dominated the picture in the sub-cortical white matter, although deeper in the white matter isomorphous gliosis of the degenerated tracts became prominent. There was no remarkable glial reaction around the blood vessels. The glial fibrosis was considered a replacement phenomenon.

The mesodermal tissue reacted weakly to the degenerative process. In the white matter many large blood vessels were surrounded by a wide court in which the proliferated adventitia rested. The adventitia was infiltrated with fat-laden *gitter*-cells, this being interpreted as evidence of degeneration of the surrounding tissues. In general the larger blood vessels were dilated, and the capillary bed was rich. Both collagenous and argentophilic connective tissue occurred in the blood vessel and capillary walls in all regions.

The changes in the cerebellum were of especial interest. It could be seen in the Nissl stain that no external granular layer was present, that the granular layer was very thin and that the Bergmann glia cell layer had proliferated to form a dense layer of glia cells.

(Fig. 3.) The Purkinje cell layer showed a marked loss of cells and the Purkinje cells present were greatly filled with lipoid which extended into the dendrites in the molecular layer. An occasional Purkinje cell undergoing neuronophagia was present. *Gitter*-cells were abundant in all layers, especially in the granular layer. The molecular layer was not apparently atrophied. Lipoid could be seen in the Bergmann glia cells. The lipoid stained similarly to the reaction seen in the cortex in the fat stain. The glia nuclei in the white matter were abundant. The ganglion cells of the dentate nucleus were filled with lipoid, over half of the cells either having dropped out or, if present, appearing as an empty space with a faint blue stained homogeneous nucleus. The Bielschowsky stain showed the morphology of the Purkinje cells with their lipoid-filled, distorted cell bodies and dendrites. (Fig. 4.) No argentophilic bodies such as those described by Samoza [6] and Santha [7] were observed. The neurofibrils were pushed to the edge of the cell by the lipoid and the nuclei were argentophilic as a rule. The nodular swelling of the axon consisted of a grey-stained, homogeneous substance with the neurofibrils interlacing over the surface. This was often associated with a bipolar splitting of the axon which finally looped back to the Purkinje cell layer. The mossy and climbing fibres had practically disappeared, as well as most of the fibres belonging to the basket cells. Few myelinated fibres were left in the cortex of the cerebellum, more being present in the vermis than in the lateral lobes. The fibres emerging from the dentate nucleus were much better preserved and could be followed through the brachium conjunctivum to the red nucleus. (Fig. 5.) Therefore, we deal with a centripetal degeneration of afferent fibres, and a centrifugal degeneration of efferent fibres down to the dentate nucleus. The Holzer glia fibre stain revealed extensive border gliosis and an isomorphous gliosis at right angles to the edge of the lamella down through the granular layer where it became anisomorphous in the white matter.

In the eye only the optic nerve and retina revealed pathological alterations. The retina disclosed a marked loss of ganglion cells, those still present being filled with lipoid which had the same staining reaction to fat as the cells in the cortex. The proliferation of glia cells and fibres in the nerve fibre layer had replaced the degenerated axis cylinders. The layer of rods and cones and both nuclear layers were intact. In the region of the macula, the external nuclear

layer was not disturbed in contour but the internal nuclear layer was pushed forward by a marked thickening of the Henle fibre layer which was frayed out into a loose reticulum made up of glia fibres. (Fig. 6.) The Bielschowsky stain showed a marked loss of nerve fibrils in the nerve fibril layer and a reduction in other layers. The inner reticular layer was somewhat thickened. The changes described produced the elevation of the macula seen grossly and were due to both edema and gliosis of the outer reticular and Henle fibre layer. This explains the white ring in the macula surrounding the fovea centralis ophthalmoscopically.

The optic nerve bundles were atrophied and surrounded by a marked thickening of the pial sheath and trabeculæ between the nerve bundles. The pia-arachnoid was proliferated obliterating the subarachnoid space between the nerve and thickened dural covering. The nerve bundles were decreased in size and diffusely demyelinated to a moderate degree, especially in the central portion of the nerve. There was likewise a reduced number of axis cylinders and the nerve bundles contained an increased number of glia nuclei as well as irregularly arranged glia fibres. Blood vessels in the nerve were not abundant. The external geniculate body was practically devoid of ganglion cells with subsequent demyelinization of the optic radiations. This would indicate that the central visual system had undergone a greater degree of degeneration than was present in the eye and optic nerve.

Comment.

The recessive character in the transmission of amaurotic family idiocy maintained by Spielmeyer,[8] Halbertsma and Leendertz,[9] Sjorgren,[10] Sachs,[11] and others may apparently outcrop by the accidental occurrence of the same germ plasm defect in two families otherwise free of the disease as is suggested at least theoretically in this case. The disease was dominant in the family reported by Van Bogaert, Sweeerts, and Bauwens.[4] Cases reported by Sachs,[11] Pounders,[12] and Lebbetter [13] also prove that it may occur in non-Jewish stock. It has been reported in a Spanish family (two cases) by Santiago,[14] and among the Japanese by Cordec and Horner [15] (two cases), and by Mayeda and Kitamura [16] (one case). Stewart [17] observed the disease in two generations of a family.



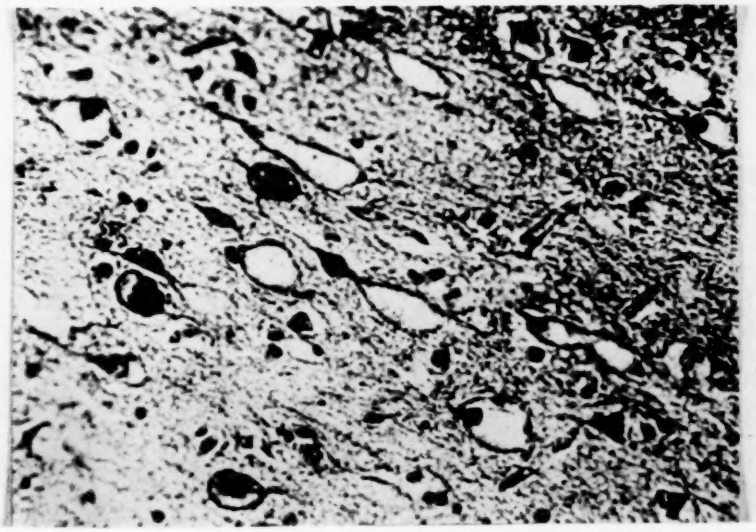


FIG. 1.—Above: Brain of Patient. Below: Normal Adult Brain Weighing 1350 Grams. Scale = 6 in. (15 cm.).

FIG. 2.—Section of the Cerebral Cortex Showing Typical Swelling of the Ganglion Cells and Processes With Lipoid. Nissl Stain × 266.

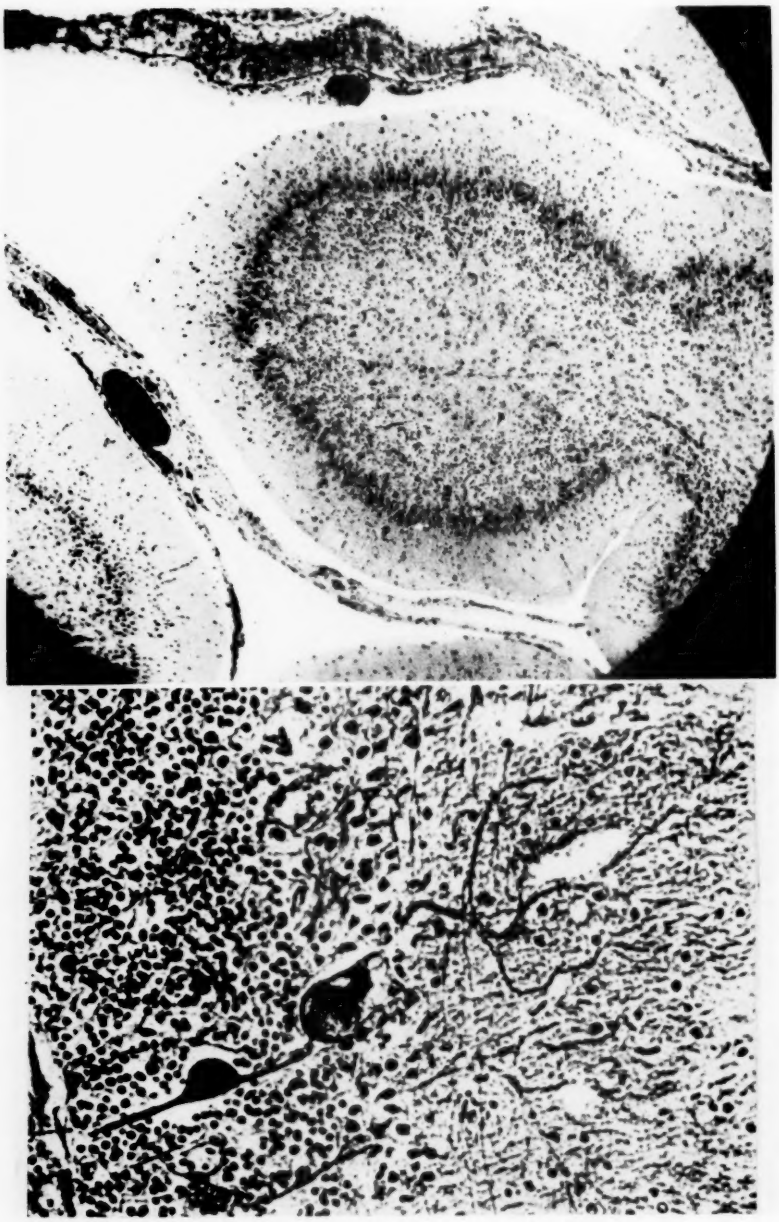


FIG. 3.—Cerebellum. The Section Shows Diffuse Thinning of the Granular Layer, Loss of Purkinje Cells, and Proliferation of the Bergmann Glia Cell Layer. Nissl Stain × 50.

FIG. 4.—Purkinje Cell With Ballooning of the Cell Body and Dendrite With Lipoid, Axonal Swelling, and Loss of the Mossy, Climbing, and Basket Cell Fibres. Bielschowsky Stain × 266.

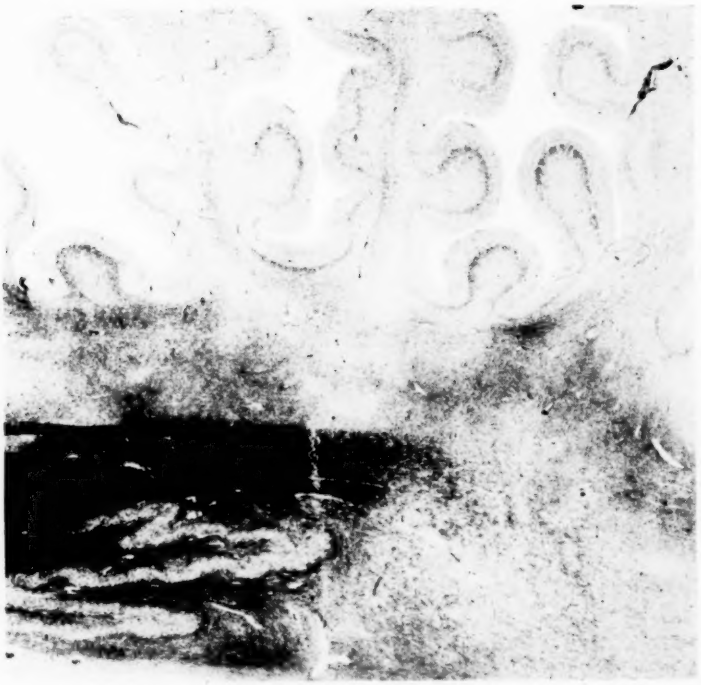




FIG. 5.—Cerebellum Almost Completely Demyelinized With Sparing of Fibres Emerging From the Dentate Nucleus. Spielmeyer Myelin Sheath Stain × 8.

FIG. 6.—Retina. The External Nuclear Layer is Intact, the Internal Nuclear Layer is Pushed Forward by the Thickened Henle Fibre Layer in the Region of the Macula. Nissl Stain × 12.

The pathological examination suggests several topics of interest. The brain weight of 2300 grams is larger than the 1690 gram brain studied by Bielschowsky [18] which was the greatest brain weight recorded that we could find.

The ganglion cell degeneration in the cortex varies tremendously in different regions in different cases reported, so that conclusions drawn from architectonic studies, as for example those made by Vogt [19] and Inaba [20] are contradictory and cast doubt on Vogt's theory of pathoclisis in the cortex as an explanation for the local vulnerability of given cell groups. Likewise the tract degenerations throw little light on the question of local vulnerability as the posterior columns are well retained in this case, although phylogenetically younger than the spino-thalamic tracts which are degenerated. It is true that many old structures of the brain stem and medulla are preserved such as the posterior longitudinal bundle, the olivocerebellar tracts and the fasciculus retroflexus. The lateral thalamus is degenerated, as was true in Hassin's [21] infantile case, but the picture in the medulla is quite similar to his late infantile case. It seems logical to agree with Schaffer [22] that in general the myelin degeneration follows the cell groups most severely injured and conforms to no arbitrary classification. However, one cannot dogmatically deny that there is also an arrest of myelin development in some areas. Bielschowsky [23] and Ostertag [24] have assumed that a developmental arrest of myelinization occurs as a result of a defective trophic function of the glia interfering with its ability to form myelin and to carry on lipoid metabolism. The consideration of the disease from the point of view of the lipoid metabolism offers a more sensible approach to the question of both the etiology of the disease and the delineation of clinical and pathological types.

In Tay-Sachs disease the cerebellar degeneration seen here is not frequent but has been observed by Westphal,[25] Bielschowsky,[26] Globus,[27] Dollinger,[28] and Ostertag.[24] The intensity and duration of the disease process probably accounts for the degree of degeneration. The lack of destruction of the dentate nucleus and the dentato-rubral fibres is similar to the observation of some of the cases of cerebellar atrophy studied by Scherer [29] and indicates that the atrophy of the cerebellar cortex is primary. A cerebello-fugal atrophy in the sense of Bielschowsky may have been present earlier in the disease, but the process was advanced beyond that stage at

the time of death. This case tends to break down Jansky's classification of a cerebellar type.

The changes in the retina agree with the observations of Szymanski,[30] Mohr,[31] Poynton, Parsons and Holmes,[32] and others. Most observers explain the macular thickening on the basis of edema but there is an increased gliosis of the Henle fibre and outer reticular layer as well in this case. However, this gliosis may be a reactive phenomenon to prolonged edema. Bielschowsky[23] expressed the opinion that the changes occurring in the calcarine cortex may cause the loss of vision. A similar idea may also apply to the external geniculate body because in this case the degeneration in the lateral geniculate body and optic radiations is greater than that of the optic nerve.

We have purposely omitted lipoid studies in this report as well as avoided entering into the arguments now ensuing concerning the etiology of this condition from the metabolic point of view. There are many problems that the morphologist cannot solve in this disease and it is hoped that concerted effort on the part of the clinician, biochemist and neuropathologist working together will be rewarded with their solution in the future.

Summary.

1. A case of amaurotic family idiocy was studied clinically and pathologically.

2. Clinically interesting tonic and decerebrate phenomena were observed in addition to the retinal changes.

3. Pathologically, megalocephaly, cerebellar atrophy and the changes in the retina were described.

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THE VALUE OF INSULIN TREATMENT IN UNDERNOURISHED PSYCHIATRIC PATIENTS.*

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Undernutrition in psychiatric patients is frequently an important therapeutic problem. Many factors operate at the same time in producing malnutrition in the psychotic patient. Good psychiatric nursing, high caloric diet, forced feedings, etc., are often insufficient. We have found insulin therapy a useful adjuvant in producing weight gain. This physical gain often operates to change the course of the psychosis or to hasten recovery.

The value of insulin in malnutrition has been expressed by several authors. However, its use in psychiatric patients has not been extensive enough to establish its importance and of late there has been some conflicting opinion as to its actual value.

About one year after Banting and Best [1] made the valuable contribution to medicine on the internal secretion of the pancreas, Pitfield,[2] Marriott [3] and Barbouri [4] made successful use of insulin in infantile malnutrition. Falta [5] in 1925 was the first to describe the use of insulin in cases of adult malnutrition and was enthusiastic about the enormous appetites the patients would develop upon increasing insulin dosage. Appel, Farr and Marshall [6] reported in 1928 33 cases of markedly undernourished psychotic patients that failed to gain on the usual fattening régime. They noted a definite improvement of 20 per cent after insulin treatment and felt at that time that it was a definite therapeutic aid in this particular problem. In 1929 [7] they reported an average gain of 3 pounds per week in their male patients. Their patients not only held their weight, but increased it in the majority of cases after discontinuing insulin. Their female patients gained nine-tenths of a pound per week on a fattening diet prior to insulin therapy and thereafter averaged 2.4 pounds per week. These investigators noted that the gastrointestinal function seemed to be improved and that the dry, gray,

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flabby skin took on a flushed, healthy appearance with an improvement in turgor and in many cases a rejuvenation of the entire body. They found that the more uncooperative patients required careful supervision. They used large doses of insulin and blocked off their period of treatment into three- and four-week periods, figuring their results on this basis.

Barker [8, 9] very definitely believes that insulin therapy is of great value in undernutrition of psychoneurotic and mildly psychotic patients. He found improvement not only in bodily strength of the patients, but also in mental and nervous states. He was very much interested to watch an anorexic patient change to a bulimic patient, stating that the change may occur in 24 hours.

Nichol [10] studied the late results in 63 patients and found that 48 made weight gains from insulin, ranging from 5 to 30 pounds. Of these 48 patients, 23 maintained their gain three months or less, eight as long as six months, seven patients kept their gain one year, three kept their gain three years, one four years, and six cases were not followed.

Freyberg [11] in 1935 failed to substantiate the view that insulin is a valuable adjunct in the treatment of undernutrition. He concluded that when undernourished patients were injected with insulin and its effects noted separately from diet and suggestion accompanying the injections, the great majority of the patients failed to show any response. He believes that much of the benefit attributed to insulin therapy is psychic.

In a subject as complex as malnutrition in psychiatric patients, the physician must consider all factors. The patient may be constitutionally asthenic, or limiting his food intake or be on an inadequate diet; there may be an increased energy expenditure, poor assimilation or an elevated rate of organ metabolism. The use of an adjuvant such as insulin, when its effect in normal physiologic and pathologic conditions is not well understood, is therapeutically difficult to evaluate. We should interpret results through control of all the factors rather than through any one isolated factor.

In our study of the value of insulin therapy we have taken 25 underweight psychiatric patients (9 males and 16 females) who have been given insulin and compared their weight gain with 25 patients (13 males and 12 females) on ordinary fattening diets,

but who have had no insulin medication. The ages varied from 15 to 70 years. All patients were undernourished according to their normal weights. The weights ranged from 83 to 168 pounds. The groups included both psychoneurotic and psychotic cases, the majority belonging to the latter group. All patients had an intact carbohydrate metabolism. All weight loss factors were controlled as much as possible. The patients were all ambulatory and participant in regular psychiatric ward activity. Observations as to the general condition were made daily during the treatment. The weight of each patient was recorded every three days. The diet was essentially the same in all cases, the total caloric intake maintained at about 4000 calories, with forced fluid intake in the summer time of about 3000 cubic centimeters. Extra lunches and high caloric liquids were given between meals. We employed the principle that the combating of insulin shock depends more on the frequency of carbohydrate administration than on the total quantity of carbohydrates.[12] Proper bowel regulation was controlled by lactose and psylla seed medication where necessary. Mineral oil and related drugs were not given, as we feel that laxatives interfere with absorption of food in undernutrition.

Insulin was usually given 15 to 20 minutes before meals, twice or three times daily. The initial dose was usually 5 units, increased to 10 units and 15 units if the patient's weight gain was not satisfactory. We did not employ as large doses as some investigators because with large doses prolonged storage of insulin has been demonstrated.[12] We prefer to avoid insulin shock if possible, and only one such reaction occurred in our series.

The patients receiving insulin therapy were definitely a more difficult group to handle from a psychiatric as well as a general medical standpoint. They included severe depressive and schizophrenic cases who had steadily lost weight previously. The more malnourished and those who resist feeding naturally are the group where insulin therapy is needed.

The 25 cases receiving insulin made a total gain of 283 pounds, an average gain of 11⅓ pounds per patient. This group had 1807 hospital days and averaged a gain of 1.09 pounds per week. In the control group, without insulin under the same conditions, a total gain of 173 pounds, 6½ pounds per patient, in 1797 hospital days was made, an average gain of .673 pounds per week. The

cases treated with insulin gained .42 pounds per week more than the cases treated under the same conditions without insulin. As we stated before we did not block our treatment into experimental periods, but figured our results on the basis of total days in the hospital. If we figure the total number of days that the patient actually received insulin, *i. e.*, on the basis of the total number of treatment days, which was 1240, we find that the average gain of patients receiving insulin was 1.59 pounds per week. Female patients studied separately show an average gain per week on the basis of total hospital days of 1.099 pounds; on the basis of total days of actual insulin treatment, they gained 1.615 pounds per week. The average gain among the female patients on the basis of total hospital days is .696 pounds per week. Male patients showed an average gain per week of 1.089 pounds when figured on the basis of total hospital days; when figured on the basis of total days of treatment, they average 1.557 pounds per week. Patients not receiving insulin made on the basis of total hospital days an average gain per week of .651 pounds.

The psychiatric reaction types of those receiving insulin therapy were: 13 manic-depressive states, including reactive depressions and involutional depressions. In this group were our more severe states of malnutrition; most of these patients had hypochondriacal delusions. Two patients showed almost pure schizophrenic reaction types. Four patients were essentially of the psychoneurotic reaction type with marked undernutrition. Four patients were classified as toxic infectious psychosis, one chronic invalid state with profound hypochondriasis and morphinism and one markedly undernourished senile psychotic. Twenty-two of these patients were discharged as improved and three as unimproved.

On the whole the patients in the control group were not considered such difficult feeding problems. The reaction types of the group not receiving insulin therapy were 12 manic-depressive states of which three were pure excitement states (there was only one mildly excited patient in the insulin group), four schizophrenic states, five psychoneurotic reaction types, one chronic invalid state, one toxic infectious psychosis and one case of general paresis. The paretic patient received malarial therapy and made a weight gain of 26 pounds. This weight gain was the largest in the non-insulin group and pushes the average of the group up considerably.

Twenty-two patients in the group were dismissed as improved and three were considered unimproved.

The greatest single gain obtained was one of 35 pounds in an involutional depressive case. She remained in the hospital 103 days after the insulin was discontinued and continued to gain. Another patient showed a gain of 27 ponuds, another 26 pounds. Sixteen patients in the insulin group gained more than 10 pounds. Only six patients in the control group gained more than 10 pounds. Only two patients given insulin failed to gain weight, and three patients weighed less upon dismissal than on entrance. The weight gain in these later cases began after a marked weight loss while in the hospital but was still less upon dismissal than upon entrance.

The most significant weight gains were seen in the affective reaction types. There was an average weight gain in the manic-depressive group of about 14 pounds. Since the depressive patient is often the most difficult feeding problem, any method that will insure such weight gain is exceedingly desirable. The schizophrenic patients averaged 15 pounds gain in weight, but there were only two patients in this group, one of whom gained 26 pounds. The organic reaction types and miscellaneous group average about nine and one-fourth pounds gain in weight. The psychoneurotic reaction types average about five pounds gain in weight.

In the control group, upon high caloric diets without insulin the weight gain averages were practically the same with each psychotic reaction type. The psychoneurotic group averaged six and two-tenths pounds weight gain; the manic-depressive, six and five-tenths pounds; the schizophrenic six pounds and the organic reaction types five and three-quarters pounds.

Other clinical improvement aside from the weight gain is hard to evaluate. Twenty-two of the 25 insulin treated patients were dismissed as definitely improved. These patients became easier nursing problems. It is most gratifying to see these patients regain their appitites with subsequent gain in strength and normal turgor of skin. They become more interested in the ward routine, become encouraged in their treatment and thus are more accessible for psychotherapy and other therapeutic attempts.

The effect of insulin therapy upon the mental status is still more difficult to evaluate. At times striking improvement in behavior, mentation and return of normal affective tone come coincidentally

with the weight gain. However, as other therapeutic aids are used such as psychotherapy, occupational and recreational therapy, we do not feel justified in attaching too much significance to the weight gain. The unimproved patients were exceedingly difficult types. One showed a marked hebephrenic schizophrenic reaction, another was a senile psychotic and another an involutional depression with schizoid features. In spite of a marked physical gain of 35 pounds this patient is still in a state hospital.

We definitely believe that insulin therapy is a great adjuvent and coincident with the physical gain usually the mental reaction is improved. In many instances insulin therapy shortens the hospitalization period and hastens convalescence. All the factors working together, however, really determine the therapeutic result.

Summary.

Twenty-five psychiatric patients on high caloric diets receiving insulin therapy for malnutrition were compared with 25 cases not receiving insulin therapy; all other conditions being essentially equal. An average of .423 pounds per week excess gain was found in the cases that had received insulin treatment.

We believe that this form of treatment is a definite adjuvant in the handling of the psychiatric patient with undernutrition. This form of therapy makes the psychiatric nursing problem easier and tends to make the patient more accessible to receive other therapy and thus shortens convalescence. It should not be considered a specific therapeutic agent and the results obtained must be evaluated along with other operating therapeutic factors.

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THE TREATMENT OF CONVULSIONS IN CHILDREN.*

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One of the most important factors in the proper treatment of convulsions is a correct diagnosis. This point need not be stressed to psychiatrists or to neurologists but it does bear emphasis. Even recent textbooks in pediatrics refer to "convulsions in childhood," or "fits in children," as if such terminology signified a diagnostic classification. Therefore, I should like to present first a clinical classification of the convulsions of childhood. This classification may not be complete but it presents a clinician's viewpoint or interpretation of the seizures which he sees in practice and which he must attempt to diagnose and treat. The basis for the logical grouping of the diagnoses of convulsions according to age periods has been previously explained.[1]

ENTIRE SERIES.

Diagnosis.	Number.	Per cent.
Epilepsy (idiopathic)	165	33.0
Acute infection	115	22.8
Cerebral birth injury or residue	76	15.4
Spasmophilia or tetany	68	13.6
Miscellaneous	44	8.8
Cause unknown	32	6.4
Total	500	100.0

NEW-BORN (TO 1 MONTH) (AGE OF ONSET).

Diagnosis.	Number.	Per cent.
Cerebral birth injury	18	54.7
Acute infection	4	12.3
Epilepsy	3	9.0
Hydrocephalus	2	6.0
Spasmophilia	2	6.0
Meningovascular syphilis, congenital	1	3.0
Gastro-enteritis	1	3.0
Meningitis, streptococcic	1	3.0
Unknown	1	3.0
Total (6.6 per cent of total cases)	33	100.0

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

From 1 to 6 Months (Age of Onset).

Diagnosis.	Number.	Per cent.
Acute infection	20	29.4
Cerebral birth injury	16	23.5
Spasmophilia	11	16.1
Epilepsy	5	7.4
Gastro-enteritis	3	4.5
Meningitis, meningococcic	1	1.5
Unknown	12	17.6
Total (13.6 per cent of total cases)	68	100.0

From 6 to 36 Months (Age of Onset).

Diagnosis.	Number.	Per cent.
Acute infection	59	29.3
Spasmophilia	45	22.4
Epilepsy (idiopathic)	39	19.4
Cerebral birth injury	25	12.4
Meningitis (meningococcic, 3; influenzal, 3; streptococcic, 2; tuberculous, 1; staphylococcic, 1)	10	5.0
Encephalitis residue	3	1.5
Hydrocephalus	2	1.0
Brain injury (traumatic)	2	1.0
Intracranial vascular lesion	2	1.0
Poliencephalitis, Strümpell-Marie	2	1.0
Gastro-enteritis	1	0.5
Congenital syphilis	1	0.5
Pertussis, sequel (intracranial hemorrhage)	1	0.5
Encephalitis, chronic	1	0.5
Unknown	8	4.0
Total (40.2 per cent of total cases)	201	100.0

From 3 to 10 Years (Age of Onset).

Diagnosis.	Number.	Per cent.
Epilepsy (idiopathic)	77	59.0
Acute infection	17	13.0
Cerebral birth injury	14	10.0
Tetanus	4	3.0
Jacksonian epilepsy	3	2.0
Congenital brain defect	2	1.5
Brain tumor	2	1.5
Encephalitis residue	2	1.5
Residue brain injury (traumatic)	2	1.5
Hydrocephalus, congenital	1	0.8

Diagnosis	Number.	Per cent.
Meningitis, streptococcic	1	0.8
Congenital syphilis	1	0.8
Gastro-enteritis	1	0.8
Tertian malaria	1	0.8
Unknown	4	3.0
Total (26.4 per cent of total cases)	132	100.0

From 10 to 15 Years (Age of Onset).

Diagnosis.	Number.	Per cent.
Epilepsy (idiopathic)	26	81.2
Tetanus	2	6.3
Congenital malformation of brain	2	6.3
Encephalitis residue	1	3.1
Cerebral birth injury residue	1	3.1
Total (6.4 per cent of total cases)	32	100.0

Theoretically one may consider all convulsions under the general term of "the convulsive state" but practically there are different types of convulsions which have specific causes and these causes, such as spasmophilia, tetanus, cerebral birth injury, epilepsy, present distinct clinical pictures which respond to distinctly different types of treatment. The convulsions in spasmophilia are controlled with the administration of calcium, those of hypoglycemia with the administration of dextrose, and those of tetanus require treatment with tetanus antitoxin. After the immediate symptomatic treatment of the convulsion it is essential that a careful differential diagnosis be considered, particularly in the chronically recurring seizures.

Thirty-three per cent of all convulsions in childhood, or 60.5 per cent of all of the chronically recurring convulsions, are due to idiopathic or essential epilepsy; 27.8 per cent of the chronic convulsions are due to cerebral birth injury residues, and 11.7 per cent are due to other organic brain lesions, such as chronic encephalitis, traumatic brain injury, congenital syphilis. The majority of cases of chronic convulsions in children are not amenable to direct or surgical treatment and therefore present medical problems.

Of these problems the treatment of epilepsy has been most fascinating because there is no known pathologic lesion in this disease.

I shall not open the argument as to whether epilepsy is a clinical entity in itself. My definition explains my viewpoint, *i. e.*, "Idiopathic epilepsy is a chronic disease of the nervous system characterized by periodically recurring convulsions, lapses or abnormal mental states which occur in an individual with a constitutional inferiority or personality defect but with no demonstrable pathologic lesion which might be responsible for the convulsions." [2] The treatment of epilepsy before the ketogenic diet was introduced was purely symptomatic.

Since the time of Hippocrates it has been known that fasting and purging are the most effective forms of treatment of epilepsy. Geyelin in 1921 reported favorable results with fasting under scientific control. Wilder, on the basis of Geyelin's report, suggested that the ketosis produced by fasting might be the factor responsible for controlling the convulsions. Upon Wilder's suggestion the ketogenic or high fat diet was initiated at the Mayo Clinic. In July, 1924, I submitted a preliminary report of the results of treatment of epilepsy with the ketogenic diet.[3] In this report the basis of the high fat diet was presented. Fasting produces a hypoglycemia, a tendency to acidosis and a ketosis. It was felt that the hypoglycemia was not the effective factor in controlling convulsions because the threshold for seizures seems to be lower when the blood sugar is low. Low carbohydrate diets without ketosis do not control the convulsions of epilepsy. The tendency to acidosis is probably not the factor since acidosis produced in several ways did not control the convulsions for any period. Wilder's argument that the ketosis, particularly the anesthetic effect of the acetoacetic acid produced, was the effective factor seemed most reasonable. However, a marked ketosis, together with an alkalosis, produced with carbohydrate restriction and large doses of sodium bicarbonate, does not control seizures. The most effective results have been obtained when the diet is restricted to a daily allowance of 10 or 15 grams of carbohydrate, 1 gram of protein per kilo of body weight, and the remaining calories supplied in fat.[4]

In 1925 I reported the results of two and one half years of treatment with the ketogenic diet in 37 patients.[5] In this report I showed that the CO_2 combining power of the blood plasma can be brought as low as 32 and the urine pH to 4.4. I also empha-

sized the point that children with organic brain lesions and adults with epilepsy of long standing could not be expected to respond to dietary measures as do children with pure epilepsy. In 1928 Barborka reported that in adults 14 per cent could be kept free of seizures on the ketogenic diet.[6] In 1925 I noted the fact that children on the ketogenic diet showed a change in character concomitant with the ketosis, a decreased irritability and an increased interest and alertness.

Fay in 1928 proposed the mechanical theory of epilepsy and suggested that possibly dehydration was the effective factor in the ketogenic diet.[7] McQuarrie in 1929 demonstrated the dehydration effect of the ketogenic diet.[8] In 1930 I reported the observation that the wheal disappearance test rapidly decreased after the child was put on a ketogenic diet, an indication of the dehydration process induced by the diet.[9] However, strangely enough, in my experience dehydration procedures alone influence grand mal seizures much more effectively than they do petit mal, while the ketogenic diet has been most effective in controlling petit mal attacks.

A review of the literature reveals the fact that the etiology of epilepsy remains in obscurity. The results of treatment with the ketogenic diet have been the most favorable of any since the introduction of phenobarbital. There has been no change in the plan of the ketogenic diet since its introduction except that a preliminary fast is desirable and makes it possible to institute the diet abruptly.[10] The combined treatment of the ketogenic diet, plus dehydration, plus phenobarbital when necessary, offers a practical, fairly simple and effective treatment which will control epilepsy in 50 per cent of the cases and will greatly reduce the number of seizures in another 20 per cent. Eley has stated that if a careful differential diagnosis is made, including an encephalogram, 90 per cent of the epileptic children with normal encephalograms can be kept free of seizures on the ketogenic diet.[11] In the treatment of epilepsy one must not neglect the important details which I have mentioned in previous publications, such as change of environment, a definite daily regimen, removal of all sources of irritation (mental and physical), correction of constipation and correct posture.

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A COMPARISON OF THE WEIGHTS OF BRAIN, LIVER, HEART, SPLEEN AND KIDNEYS OF EPILEPTIC AND SCHIZOPHRENIC PATIENTS.*

By MERRILL MOORE, M. D., and WILLIAM G. LENNOX, M. D.

Introduction.

It has been reported that an abnormal relationship exists between the weight of the brain and of the liver of epileptic patients, and in the size of the heart of schizophrenic patients. In view of these claims, we have attempted to correlate the weight relationships of the brain, liver, spleen, heart and kidneys in the following three groups:

Group I. 143 patients with the diagnosis of epilepsy, who died and were autopsied in state mental hospitals.

Group II. 284 patients with a psychiatric diagnosis of schizophrenia from the same autopsy series as Group I.

Group III. 194 patients autopsied consecutively in three general hospitals. This last group represents a control series, since it contained only patients who died from non-mental disease, yet came, in large measure, from the same communities as did the patients in Group I and II.

No attempt was made to classify the patients with respect to the immediate cause of death. The epileptics and the schizophrenics had been patients in state institutions for custodial care over a considerable period of time and were ambulatory for the greater portion of their stay. The control group suffered acute illnesses and had been in hospitals for a short time prior to death. In this group, cases were excluded which had gross disease of the organs being investigated.

Literature.

Investigators for almost a century have endeavored to relate dysfunction or pathology of the liver to epilepsy. In 1843, a case

* From the Department of Neurology of the Harvard Medical School, the Neurological Unit of the Boston City Hospital, and the Boston Psychopathic Hospital. This paper is No. XXII in a series entitled "Studies in Epilepsy." Funds were in part supplied by the Harvard Epilepsy Commission.

of epilepsy was reported from the Peter-Paul's Hospital in St. Petersburg [1] with pathological findings in the liver which were assumed to be the cause of the seizures. Day,[2] in his *Clinical Histories* published in 1866, states his belief that all but infectious diseases can be explained on the basis of malnutrition, epilepsy in particular. He describes a case of liver disease accompanied by epileptic seizures which disappeared when the liver condition cleared. This patient was free of seizures two years after discharge from the hospital.

In 1871, Kerr [3] reported a case of a young woman who had an " epileptic fit " which terminated her life. The necropsy revealed the right thorax filled with liver tissue. The whole liver weighed eight and three-quarter pounds including a two pound tumor in the left lobe, containing serous, bile-tinged fluid. The diagnosis of epilepsy in this case is very questionable since this was the first and last fit.

Jacobi,[4] in 1897, reported the case of a 12-year-old girl who had left-sided cranial trauma at six years of age. Weir Mitchell, Gower, Jackson and Dana, all concurred in a diagnosis of Jacksonian epilepsy. Urethane was prescribed and the seizures disappeared. Eventually, Ewing performed an autopsy and found an hepatic adenoma and changes in the left hemisphere of the brain due to local cranial defects. The fact that when urethane alleviated the liver symptoms the attacks ceased, suggested to the author, a relation between the seizures and the liver condition.

Féré,[5] in 1897 (and Perretière,[6] in 1905), reported a case of epilepsy with concomitant icterus. Ferrarini,[7] in 1898, described a case of " autotoxic epilepsy of hepatic origin."

Using the levulose tolerance tests, MacLean and de Wesselow [8] in 1920, Spence and Brett [9] in 1921 and Gosden and Fox [10] in 1929, thought they obtained evidence in epileptics of decreased liver function. Covell [11] in 1923, found a marked decrease of hepatic efficiency in a single case. Obregia, Pavlian and Dimolescu,[12] in 1930, reported hepatolenticular degeneration in epileptics at autopsy. Gosden and Fox [10] concluded from their findings with the levulose tolerance tests,

> . . . . these results appear to indicate that there is a definite liver deficinecy in epilepsy which during fits is very marked, and in old-standing cases persists to a slight degree in the interval between fits. This agrees with our post mortem findings in epilepsy.

Myerson,[13] in 1914, studied the liver and brain weights in 20 well-developed and well-nourished epileptics who had died suddenly. He found a slight reversal in the usual condition in which the liver is heavier than the brain; the average weight for the liver was 1150 grams; brain, 1260 grams, this indicating a decrease from normal in the liver weights of his subjects. Thom[14] studied 42 epileptics in 1916 and found an abnormal ratio between the brain and liver weights of 6:7 or 13:16.

The group of Patterson and Weingrow[15] (1928-1930) is the largest which has been reported. The brain and liver weights of 200 cases were studied, with special reference to the onset and duration of seizures. These cases were selected from 800 autopsies and included only patients with "idiopathic epilepsy" (grand mal), ranging in age from 16 to 50 years. All died suddenly in a good state of nutrition. The most common gross abnormalities found in the liver, in order of frequency, were chronic passive congestion, fatty degeneration, cirrhosis and amyloid degeneration. Patterson and Weingrow consider the normal brain to be about 1250 to 1400 grams, and the normal weight of the liver as 1800 grams. They found that the brain weight of their cases rose steadily with lengthened duration of the patient's epilepsy. The liver weight rose, as the onset of the seizures was delayed, until 15 years after which the liver weight fell steadily in proportion to the duration of the seizures. Thus, both the brain and liver developed definitely in this series until the onset of seizures, after which the brain and liver weights diminished as the seizures continued. The persistence of attacks was associated with a fall in the weight of both liver and brain.

From another series of 368 cases of epilepsy, unselected as to onset and duration of seizures, they concluded the diminution in liver size was concomitant with and non-causative of epilepsy. Weingrow,[16] in 1929 stated that the hepatic percussion zones in essential epilepsy seemed diminished in 82 adult cases.

In a series of 183 cases selected by Weingrow[17] from 1220 autopsies at the Craig Colony, which showed no frank liver pathology, there was consistent mental deterioration. The liver weight was below normal in 7 per cent of these cases.

The literature on pathology of visceral organs in cases diagnosed schizophrenia is extensive and confusing. A single investigator,

Lewis,[18] may be mentioned, who observed that the heart and the main vascular tree is small in patients diagnosed schizophrenia, a statement that continues to be the source of much discussion and speculation.

Presentation of Data.

In each group studied, the weight of brain, liver, heart, kidneys and spleen was taken from the autopsy protocol of each case. The records of the State Pathologist of the Massachusetts Department of Mental Disease included 3100 cases autopsied in the 20-year period between 1914 and 1934. This series supplied the epileptic and schizophrenic groups. The control group were selected from the most recent pathological records of the Massachusetts General Hospital, the Boston City Hospital and the Peter Bent Brigham Hospital. Unfortunately, the protocols did not contain the weight or the length of bodies, so that comparison of the weights of organs to these fundamental measurements could not be made.

Weight of Brains.

Because a brain is normal in weight does not, of course, mean that it is normal. Abnormal tissue weighs as much as normal.

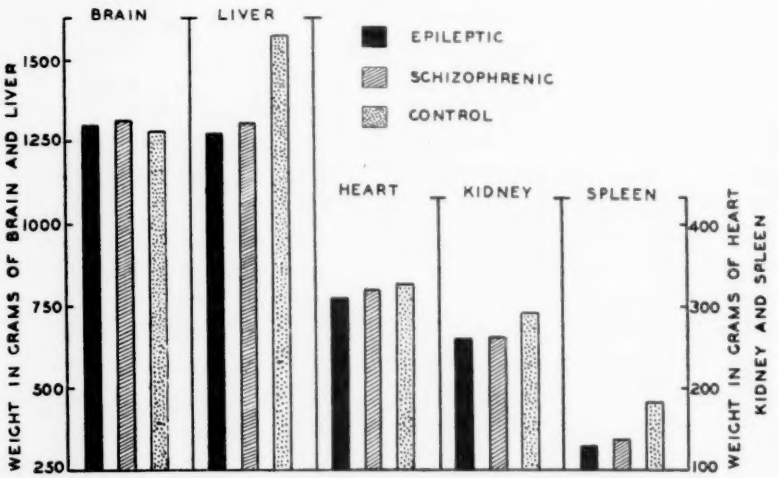


Fig. 1.—Average Weights of Organs of All Groups.

Brains are ordinarily weighed with dura and ventricular fluid intact. Substance or fluid fills the cranial cavity, although, because

of the elasticity of surrounding membranes, edema or dehydration of brain tissues may alter the contents and the weight of the intracranial contents.

Curiously enough, the brain weights of these three groups of patients are practically equal (Table I, second column and Fig. 1).

TABLE I.

AVERAGE WEIGHT OF ORGANS WITH REFERENCE TO SEX AND GROUP.

		No. cases.	Brain.	Liver.	Liver./Brain.	Heart.	Kidneys.	Kidneys./Heart.	Spleen.
Male.	Epileptic	86	1339	1317	.98	334	267	.79	133
	Schizophrenic	127	1401	1382	.98	337	280	.83	141
	Control	129	1327	1651	1.24	347	298	.86	215
Female.	Epileptic	57	1224	1185	.97	268	240	.89	118
	Schizophrenic	157	1227	1211	.98	301	243	.80	128
	Control	67	1182	1418	1.19	276	273	.98	159
Both.	Epileptic	143	1296	1268	.98	308	257	.83	127
	Schizophrenic	284	1308	1290	.98	318	260	.82	134
	Control	194	1273	1571	1.23	323	291	.90	182

The apparent relative lightness of the general hospital group can be explained only in part by the fact that this group contained a larger proportion of persons under 20 years of age. The average weights between the ages of 20 and 60 (second columns of Tables II-IV) are slightly greater in the control group. In all groups after the age of 60, there is a sharp drop in weight (except in

TABLE II.

AVERAGE WEIGHT OF ORGANS WITH REFERENCE TO AGE OF PATIENTS WITH EPILEPSY.

Age.	No. cases.	Brain.	Liver.	Liver./Brain.	Heart.	Kidneys.	Kidneys./Heart.	Spleen.
0-19	10	1164	851	.73	155	165	1.06	89
20-29	14	1319	1286	.95	325	294	.90	164
30-39	27	1301	1266	.97	300	260	.86	125
40-49	36	1344	1319	.98	313	262	.84	133
50-59	25	1305	1328	1.01	341	304	.89	146
60-69	19	1271	1247	.97	403	264	.65	109
70	12	1227	1277	1.04	449	282	.62	92

TABLE III.

AVERAGE WEIGHT OF ORGANS WITH REFERENCE TO AGE OF PATIENTS WITH SCHIZOPHRENIA.

Age.	No. cases.	Brain.	Liver.	Liver / Brain.	Heart.	Kidneys.	Kidneys / Heart.	Spleen.
0-29 *	30	1342	1290	.97	249	263	1.05	136
30-39	52	1340	1372	1.02	292	296	1.01	144
40-49	70	1317	1290	.98	287	244	.85	146
50-59	54	1335	1307	.97	336	263	.78	141
60-69	46	1276	1257	.98	398	270	.67	112
70	32	1197	1145	.95	349	216	.61	114

* But one case was less than 20 years of age.

TABLE IV.

AVERAGE WEIGHTS OF ORGANS WITH REFERENCE TO AGE OF CONTROL PATIENTS.

Age.	No. cases.	Brain.	Liver.	Liver / Brain.	Heart.	Kidneys.	Kidneys / Heart.	Spleen.
0-19	31	952	617	.65	111	131	1.10	88
20-29	11	1368	1785	1.30	371	331	.89	157
30-39	32	1379	1775	1.28	313	390	1.20	203
40-49	40	1336	1944	1.37	390	304	.77	207
50-59	38	1321	1846	1.39	363	316	.87	202
60-69	29	1336	1591	1.11	372	296	.79	190
70	15	1227	1232	1.00	394	292	.74	145

the seventh decade of the control group). It would be interesting to know if the decrease is greater or less than the old age decrease in body weight. (Why do pathologists so carefully weigh the parts of a body and never weigh the whole?)

Of particular interest is the equality in the weight of epileptic and dementia præcox brains. If cerebral edema were the cause of epilepsy, as some hold, epileptic brains should be heavier than these measurements show them to be.

LIVER WEIGHTS.

In the case of the livers, there is an unmistakable difference. The livers of the control group are, on the average, about 300 grams heavier than either of the institutional groups, and this in spite of the relatively large number of "control" youths (Table I, column 3).

The epileptic and schizophrenic groups are equal, or rather the slight inequality can be acounted for by the age factor.

Perusal of the "liver" column in Tables II-IV shows that the weights are consistently low among institutional cases for all ages. In the epileptics below 20 years, the livers are exceptionally light, perhaps because these patients are exceptionally young.

Ratio of Brain and Liver Weights.

As we have stated, previous investigators have stressed the abnormally ratio in epilepsy of brain and liver weights. However, it is not the relative weights which are abnormal, but rather the

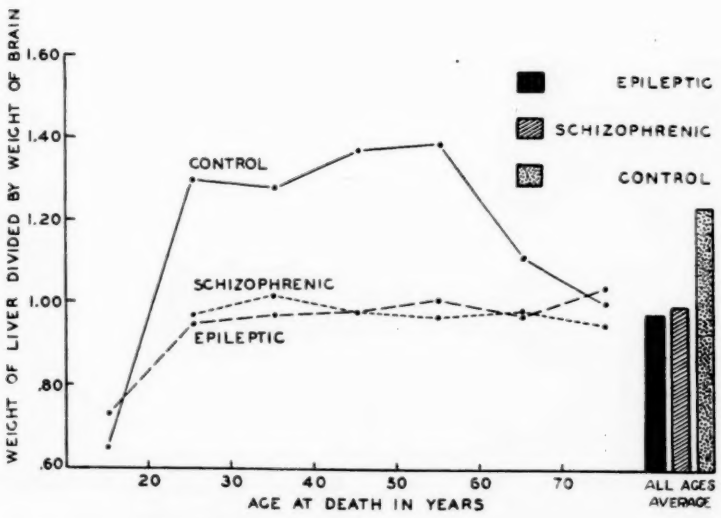


Fig. 2.—Ratio of Brain to Liver Weight in All Groups with Reference to Age.

absolute weight of the liver. The fourth column of Table I demonstrates the average ratio, which is not affected by sex. In regard to the influences of age (Tables II-IV and Fig. 2), there is for the institutional patients a gradual increase in the ratio (the liver becomes heavier with reference to the brain) with advancing age. In the control group the relatively heavy livers are found in the age groups between 20 and 60. The young and the aged "controls" do not differ from the epileptic and schizophrenic patients.

The significant point is that the ratio is low for the two institutional groups throughout all age periods, and the ratios for the epileptic and the dementia præcox groups are practically identical.

Heart Weights.

The average weights of the hearts of the three groups are remarkably alike. The epileptic heart is 10 grams lighter than the schizophrenic, a difference accountable to the larger number of epileptic youths. The schizophrenic group has a larger proportion of females, which would be expected to lower the average heart weight for this group. Certainly schizophrenics do not have small hearts when compared to epileptics. Their hearts are a trifle lighter than those of patients dying in a general hospital but these latter include some patients with non-valvular heart disease and a greater proportion of males.

Studying the influence of age, we find that there is a steady increase in weight with advancing years (Tables II-IV). This is in contrast with the brains and livers which become lighter. Hearts of the three groups all get heavier with age, but the increase is greater in the institutional groups. Epileptic and schizophrenic patients run parallel, which refutes the old textbook statement that repeated convulsions result in cardiac hypertrophy.

Kidney Weights.

Here again, the epileptics and schizophrenics are alike. Patients dying in a general hospital had slightly larger kidneys, probably because (although organs with tumors and infections were excluded) there were a larger number of nephritic and congested kidneys in the control group.

There was a tendency for the average weights to decline after middle age.

Ratio of Heart and Kidney Weights.

Reflecting the higher average weight of the kidneys in the control group, the ratio of heart to kidney weight is also greater.

Of special interest is the decrease in the ratio (larger hearts and smaller kidneys) with increasing age (Fig. 3). This inverse rela-

tionship is significant of cardio-renal disease and is not to be wondered at in the older members of the general hospital group. That a decreasing ratio holds for all groups of patients and begins in young adults is of general medical interest.

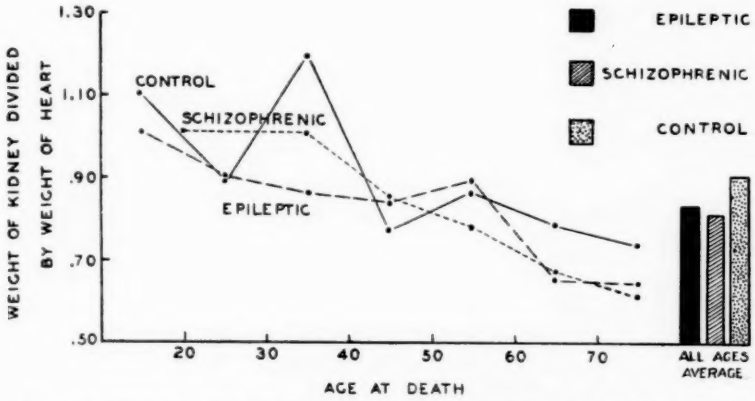


FIG. 3.—Ratio of Heart to Kidney Weight in All Groups with Reference to Age.

SPLEEN WEIGHTS.

What has been said about the liver holds for the spleen. The average spleen weight is practically the same in epileptics and schizophrenics, and both are much lighter than the spleens of

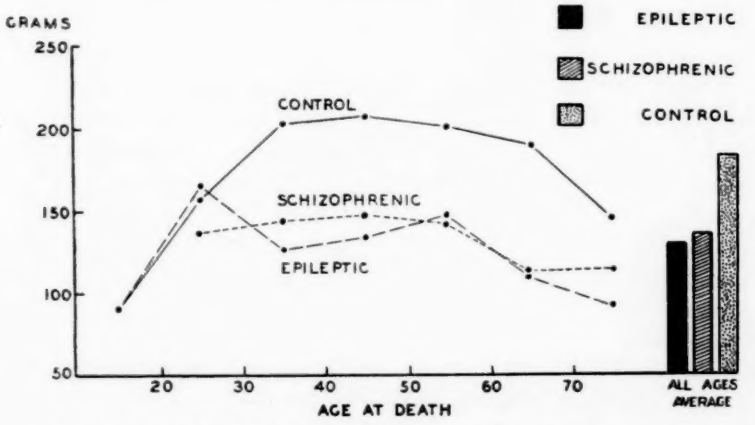


FIG. 4.—Weight of Spleen in All Groups with Reference to Age.

general hospital patients. In fact, they are lighter than the livers. In institutional patients livers were about 18 per cent lighter and spleens about 28 per cent lighter than the livers and spleens of the general hospital patients.

As with the livers, the control spleens are heavier for almost all the age periods and the absolute weights decrease with advancing age (Fig. 4 and Tables II-IV).

Comment.

These observations confirm those of Myerson, Thom, and Patterson and Weingrow that the livers of epileptics are usually small. These authors were inclined to regard this finding of possible significance in the causation of seizures. However, the wider range of our inquiry makes clear that the small liver is not peculiar or specific for epilepsy. If it in some way causes convulsions, then it also causes schizophrenia. Furthermore, the liver is not the only organ to be viewed with suspicion. If, because of its weight, the liver is implicated in epilepsy, then the spleen is also. In 1918, Canavan and Southard [19] made note of small spleens in dementia præcox. Apparently, this condition is present in epilepsy also. May it be present likewise in prisioners, inmates of old people's homes and the like?

Before casting blame on these organs, we should inquire whether the lightness is effect rather than cause of the diseases in question. Obviously, we should know the results of microscopic examinations of the livers in order to say whether the decrease in weight is due to a morbid process, such as cirrhosis, or to lack of bulk from deficiency in food elements. Evidently, the gross appearance of cut sections of these organs was normal. The presumption is that the light weight of livers and spleens of the institutional groups was a reflection of dietary deficiency or of malnutrition, and was simply a result of incarceration. Body weights are lacking but it is a fair assumption that persons dying of acute disease in a general hospital are in a better state of nutrition than those dying after years of residence in an institution. With psychotic patients, proper feeding is often difficult. Epileptics are usually voracious eaters, but the diet may not be as rich or as varied as that given to patients in a general hospital. Furthermore, a considerable proportion of institutional patients die of wasting conditions, particularly tubercu-

losis and diarrhea. Against the importance of these considerations is the statement of Myerson and Patterson and Weingrow that the cadavers they examined were well nourished.

Would malnutrition effect liver and spleen more than heart, kidneys or brain? Jackson,[20] quoting Lazareff, gives the weight loss of various organs of groups of guinea pigs in various stages of total inanition. The following tabulation compares the percentage change in weight of the organs of that group of animals which had lost 20 per cent in body weight, with the percentage change in weight of organs of institutional patients, compared with the control group.

	Animals—change in weight compared with pre-inanition period. Per cent.	Patients—change in weight compared with control group.	
		Schizophrenic, Per cent.	Epileptic, Per cent.
Brain	− 3.0	+ 2.7	+ 2.0
Heart	− 9.1	− 1.5	− 4.6
Kidneys	− 2.5	−10.6	−11.7
Liver	−23.5	−18.5	−19.9
Spleen	−31.2	−26.4	−30.2

It will be seen in both starving animals and in institutional patients, the liver and spleen are relatively much lighter than the brain, heart or kidney. The average daily cost of food per patient in one state institution for epileptics is 12 cents. These bits of evidence go to strengthen our feeling that dietary conditions may account for the small livers and spleens in the institutional groups.

If all this laborious statistical study leads to the conclusion that the institutional patients were undernourished, the very homely corollary follows that greater attention needs to be paid to the weight and the general physical condition and state of nutrition of these patients.

Conclusions.

The weights of the brain, liver, heart, kidneys and spleen have been recorded for 143 epileptics, 284 schizophrenics, and 194 patients dying in a general hospital.

The average weights of these organs did not differ significantly in the epileptic and schizophrenic groups. In particular, brains of epileptics were not heavier, nor were the hearts of schizophrenics lighter than in the other group.

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In comparison with the control group of general hospital patients, the important difference was the lightness of the livers and the spleens of the institutional patients, an 18 per cent average decrease for livers, and a 28 per cent decrease for spleens.

We believe it probable that the small livers and spleens are not of etiological significance in epilepsy or schizophrenia, but are a result of chronic disease or of dietary insufficiency.

NOTE.—The authors wish to acknowledge the courtesy of Dr. M. M. Canavan, formerly pathologist to the Massachusetts Department of Mental Diseases, and of the pathologists to the Massachusetts General Hospital, the Boston City Hospital and the Peter Bent Brigham Hospital in making accessible the data used herein.

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Comment.

RESEARCH IN PSYCHIATRY.

In the March-April issue of the monthly bulletin of the Massachusetts Society for Mental Hygiene, Dr. Abraham Myerson, director of the research laboratory at the Boston State Hospital, discusses what he believes to be significant and accessible avenues of investigation in the field of psychiatry, recognizing the fundamental unity of the mental sciences, medicine and biology and the necessity for the cooperative efforts of chemistry, physics, physiology and psychiatry in the solution of the problems of mental disorder. Dr. Myerson points out that psychiatric research is really research in every field of medicine.

The main directions of inquiry which have been followed at the Boston State Hospital are thus outlined:

> The laboratory has divided up its work for the past eight years into several important research units. For several years its main efforts were directed towards the study of those conditions of pressure and chemistry which took place within the skull. In other words, by the development of special techniques the laboratory undertook to understand the physical fluid shifts and the chemical interchanges which are part of cranial and brain activity. The introduction of the internal jugular puncture made it possible to study these changes and, together with techniques developed by other workers, the laboratory has contributed a good deal of original work on intracranial dynamics. Thus we studied the shifts of fluid pressure and circulation which take place whenever the body is changed in posture, as for example, when the head is up or down. The effect of drugs in the creation of changes of cranial pressure was also studied. As a result of the work of this laboratory and of many other places of research, it can be stated that what happens within the head under many circumstances of health or disease has become better understood. The intracranial space is a veritable maelstrom of changing pressures and of speeds of fluids which enter and leave the head, such as the arterial-venous stream and the arteriospinal fluid pressure. This mechanism is extremely sensitive to all manner of the changing relations of the individual to the outer world, while at the same time the organism in a condition of health has very efficient and very swiftly acting mechanisms of compensation. It appears, too, that a large part of the symptoms of disease arises because of the fact that this machinery of compensation breaks down.
>
> Our interest in the changes within the brain under the influence of drugs led finally to the study carried on this year of the effect of those drugs which

profoundly influence the autonomic nervous system. There has opened one of the most fascinating chapters in the history of research. The chemist has been able to isolate those substances which the nervous system stimulates the body into producing and which are the basis of nervous and muscular action. Science has also been able to manufacture the substances which resemble these natural chemical products of nervous activity. The result is that pharmacology is entering into a new era, one in which the chemicals which are to be administered are merely modifications of those chemicals by which the body itself marshals and inhibits and regulates its own forces. One can now raise and lower the blood pressure at will; the tone of the gastrointestinal tract can be shifted from spasticity and increased tone to atonicity or the absence of contraction. Even such matters as the number of red cells in the organism can be increased by the use of appropriate chemical substances. Sleep can be totally destroyed or made profound; mood in very definite measure is altered by these sympatho-mimetic and parasympatho-mimetic drugs (that is, drugs which initiate the action of the sympathetic and parasympathetic nervous system).

The way is opened for a modification of the physiological and psychological activities in a much more precise and definite manner than has ever been possible before and the prediction can freely be made that diseases hitherto entirely inaccessible to treatment will now be mastered.

We have also studied the mineral content of the brain and other parts of the nervous system. A new technique has opened the doors to new facts and it is now evident that minerals which have hitherto been believed to be more or less inert in nervous and brain activity are on the contrary very active and enormously important both in normal and pathological mental processes.

Research of this kind, which has its foundation in the basic sciences and proceeds in harmony with experimental work in other branches of medicine, is the one which seems to offer most promise in the still obscure future of the prevention and treatment of mental illness. As Dr. Myerson remarks,

> The cure of mental disease is not purchasable in the sense that one can shop around and buy cures. It is purchasable if by this term is meant that the community can employ and reward devoted men and women who will give their lives during the next few generations to research into the causes and treatment of the mental diseases. If the community will collaborate with the scientists in this manner there is reason to believe that there is no mental disease which can forever resist the intelligent and faithful efforts of men to master it.

CONSTITUTION AND BY-LAWS

OF THE

AMERICAN PSYCHIATRIC ASSOCIATION.

As Amended at the 92d Annual Meeting, St. Louis, Mo., May 6, 1936.

CONSTITUTION.

ARTICLE I.

Name.—This corporation, founded in 1844 as The Association of Medical Superintendents of American Institutions for the Insane, known from 1892 to 1921 as The American Medico-Psychological Association and since 1921 as The American Psychiatric Association, is hereby continued under the last designation.

ARTICLE II.

Objects.—The objects of this Association shall be—(A) to further the study of subjects pertaining to the nature, treatment and prevention of mental disorders; (B) to further the interests, the maintenance, and the advancement of standards of hospitals for mental disorders, of out-patient clinics, and of all other agencies concerned with the medical, social and legal aspects of these disorders; (C) to further psychiatric education and research; (D) and to apply psychiatric knowledge to other branches of medicine, to other sciences and to the public welfare.

ARTICLE III.

Membership.—Section I. There shall be six classes of members: Fellows, Members, Associate members, Life Fellows, Honorary members, Corresponding members.

Section II. All classes of membership except Honorary and Corresponding members shall be residents of the United States or its dependencies or British America at the time of their election.

Section III. An Examining Board of not less than five Fellows shall be appointed by the President and approved by the Council. One member of this Board shall retire each year and be ineligible

for reappointment. It shall be the duty of this Board to make a report and recommendation to the Council on every application for every class of membership.

It shall also be the duty of this Board immediately after its organization and from time to time afterward to submit to the Council plans for the procedures by which it proposes to pass upon the fitness of new applicants for membership and of present members of the Association, make such other recommendations as it may deem advisable from time to time and perform such other duties as Council or Association may assign to it. Its plans and recommendations must be approved by the Council.

Section IV. Fellows hereafter shall be chosen from members of not less than one year's standing who have specialized in the practise of psychiatry for at least six years.

Section V. Members hereafter shall be chosen from physicians who have specialized in the practise of psychiatry for at least three years.

Members shall be recommended to Fellowship as it becomes apparent that they deserve this recognition.

Section VI. Associate members shall be physicians who have had at least one year's practise in a mental hospital.

Section VII. Life Fellows shall be those who have maintained themselves in good standing as Fellows (or formerly as active members) for thirty consecutive years. They have all the rights of Fellows.

Section VIII. Honorary members shall be those who have distinguished themselves by attainments in psychiatry or related sciences or who have rendered signal service in philanthropic efforts to promote the interests of psychiatry and mental hygiene.

Section IX. Corresponding members shall be those who are qualified for Fellowship but who are not residents of the United States or its dependencies or British America.

ARTICLE IV.

OFFICERS.—The officers of the Association shall be a President, President-Elect, a Secretary and a Treasurer whose duties may be combined, and a Council to include the above officers and twelve Fellows of whom the retiring President shall be one.

Past-Presidents after their service in the Council shall thereafter be ex-officio members of the Council without the right to vote.

There shall be three Auditors, one of whom shall retire each year.

ARTICLE V.

PRIVILEGES.—Fellows and Members only shall be entitled to vote at any meeting and Fellows only shall be eligible to office in the Association. Life Fellows, Honorary members, and Corresponding members shall be exempt from the payment of annual dues to the Association.

ARTICLE VI.

ELECTION OF OFFICERS.—Section I. The officers and four members of the Council and one Auditor shall be elected at each annual meeting. Nominations shall be made to the Association in the order of business at the first session of the second day of the annual meeting by a committee appointed for that purpose by the President during the first month of his incumbency. Elections shall take place immediately. The nominating committee shall consist of five Fellows. It will send out its ballot in the JOURNAL or otherwise, to every member of the Association, at least one month before the annual meeting. Other nominations may be made from the floor.

Section II. The President, President-Elect, and Secretary and Treasurer shall hold office for one year. Councillors and Auditors shall serve three years. The President, President-Elect and the four retiring Councillors are ineligible for re-election to their respective offices for one year immediately following their retirement. The President, President-Elect, Secretary and Treasurer, shall enter upon office at the close of business at the annual meeting at which they are elected. Other officers shall enter upon their duties immediately after their election. All officers shall serve until their successors are elected, and qualified.

Section III. A majority of the members of the Council shall constitute a quorum.

ARTICLE VII.

POWERS.—The President shall preside at the annual and special meetings of the Association or Council. In his absence at any time

the President-Elect shall act in his place. The President shall appoint committees of the Association.

The President-Elect shall assume the office of President at the close of the annual meeting held one year after his election.

The Secretary shall keep the records of the Association and perform all the duties that may be prescribed for him by the Council. The Treasurer, under the Council, shall receive and disburse and duly account for, all sums of money belonging to the Association; he shall submit a financial statement each year to the Council at its annual meeting; he shall be placed under bond to an amount which the Council each year directs. The Council may appoint an Executive Assistant or a person otherwise designated on a salary to carry such duties of the Secretary-Treasurer as may be assigned by the Council, having power to receive and deposit moneys for the Association. Such Assistant shall be bonded in an amount to be determined by the Council.

The Auditors shall examine each annual financial statement of the Treasurer and arrange for its audit by certified public accountants. The Auditors will propose and the Council will name the depositories in which the Treasurer shall keep the funds of the Association. The Auditors will act as the Financial Committee of the Council and their recommendations and actions shall be subject to the approval of the Council.

The Council shall control the funds in the possession of the Association. It shall publish a JOURNAL and print annually the proceedings of the meetings. It shall appoint the editor of the AMERICAN JOURNAL OF PSYCHIATRY. It is empowered to appoint Committees from its own membership to expend money for special scientific investigations in matters pertaining to the objects and business of the Association, to publish reports of such investigations, to adopt a budget for current expenses of the Treasurer and Committees for the ensuing year, and to apply the income of special funds to the purposes for which they were intended.

The Council shall elect an executive committee to consist of the President, President-Elect and Secretary with two other of its members which shall have the powers of the Council (at such times as matters important to the Association must be decided and it is considered unnecessary to call the Council together) between meetings of the Council.

The Executive Committee derives all its powers from the Council and the Council derives all its powers from the Association.

ARTICLE VIII.

AMENDMENTS.—Amendments to the Constitution shall be considered at the first session of the second day of any annual meeting and be adopted by a two-thirds vote of all Fellows and Members present and voting: Provided, That notice of proposed amendments has been given in writing at the annual meeting preceding that at which the amendments are submitted for action. It shall be the duty of the Secretary to send to every member, in the JOURNAL or otherwise, at least three months previous to the voting upon an amendment, a copy of its provisions.

Amendments to the By-Laws shall also be considered at the first session of the second day of any annual meeting and may be adopted by a two-thirds vote of all the Fellows and Members present and voting: Provided, That notice of proposed amendments shall have been given to the Secretary and by him published in the JOURNAL or otherwise, at least three months previous to the annual meeting at which they are to be considered, and further Provided, That these amendments have been considered at an appropriate meeting of the Council.

BY-LAWS.

ARTICLE I.

ORDERS OF BUSINESS.—The meetings of the Association shall be held annually, each meeting to extend over at least three days. The place of each meeting shall be named by the Council and reported to the Association for action at the annual meeting preceding. Each annual meeting shall be called by printed announcements sent to each member on its rolls at least three months previous to the meeting, and by publication in the JOURNAL.

On the second day election of officers shall be held and amendments to the Constitution and By-Laws shall be considered.

On the third day elections to the different classes of membership in the Association shall be held. The lists of candidates submitted shall have been passed by the Examining Board and the Council. Before the close of the final session the President, the President-Elect, and the Secretary and Treasurer shall be inducted to office.

The Council shall hold an annual meeting concurrent with the annual meeting of the Association; and shall hold as many sessions and at such times as the business of the Association may require.

The President shall have authority at any time, at his own discretion, to instruct the Secretary to call a special meeting of the Council; and he shall be required to do so upon a request signed by six members of the Council. Such special meetings shall be called by giving at least two weeks' written notice.

ARTICLE II.

DUES.—Each member shall pay to the Treasurer such annual dues and assessments as shall be determined by the Council at its annual meeting.

ARTICLE III.

RESIGNATION AND DISMISSAL.—Any member of the Association may withdraw by signifying his desire to do so in writing to the Secretary: Provided, That he shall have paid all dues to the Association. Any member who shall fail for three successive years to pay dues after special notice by the Treasurer shall be regarded as having forfeited membership, unless such payment of dues is waived by the Council for good and sufficient reasons.

The name of any member declared unfit for membership by two-thirds vote of the members of the Council present at an annual meeting of that body, shall be presented by the Council to the Association, from which he shall be dismissed if it be so voted by a number not less than two-thirds of those present at the annual meeting, registered and voting.

ARTICLE IV.

AFFILIATED SOCIETIES.—When any state or provincial psychiatric society or psychiatric society of a geographic division in the United States or British America shall express a desire to become an affiliated society of The American Psychiatric Association, it shall submit to the Council of this Association a copy of its constitution and by-laws, showing the requirements for membership and a list of the members. If the Council recommends to the

Association at an annual meeting that the said society be accepted and this recommendation be adopted by a vote of not less than two-thirds of the Fellows and Members registered and voting at the session at which the recommendation is submitted, the society making application shall thereafter be designated as an Affiliated Society of the Association. Societies designated as district societies previous to the adoption of this by-law shall hereafter be designated as Affiliated Societies.

ARTICLE V.

DISTRICT BRANCHES.—When a group of not less than twenty of the membership of the Association residing in any state or group of adjoining states shall make application to the Council of this Association to organize a district branch of the Association and the Council approves, the Council may recommend to the Association at an annual meeting, the establishment of such a district branch, to be named according to the state or group of states where it is to be organized. The recommendation may be adopted by a vote of not less than two-thirds of the Fellows and Members of the Association registered and voting at the session at which the recommendation is submitted: provided however, that no one shall become a member of the district branch who is not already in the membership of The American Psychiatric Association. Each district branch may elect its own officers, arrange its own programs of meeting and shall provide for its own expenses.

ARTICLE VI.

NEW SECTIONS.—The Council upon its own initiative or upon the application of not less than twenty Fellows or Members, or Associate Members, may present to the Association a proposal for a section which shall have its own special program. Upon approval of the Association the following plan shall be adopted:

1. A section of The American Psychiatric Association shall be established and appropriately named.

2. A section chairman and secretary shall be elected by the section. The chairman shall be a Fellow of The American Psychiatric Association.

News and Notes.

NATION-WIDE DEVELOPMENT IN THE FIELD OF PSYCHIATRY.—Through the efforts of the Committee on Public Education, under the chairmanship of Dr. C. C. Burlingame, the following notes have been compiled from material communicated by members of the Association. The cooperation of these members is deeply appreciated by the committee and the JOURNAL.

It is hoped that other members of the Association may contribute items of interest as they occur so that the committee may have a running summary of events of psychiatric import throughout the country, to be made available for the information and use of the Association at large and for publication from time to time.

This summary, incomplete as it may be, points to a definite quickening of interest in psychiatry throughout the nation. New construction has unquestionably been stimulated by federal agencies and many states are taking advantage of the opportunity to remedy overcrowding which has existed for years. At the same time, the magnitude of the construction already under way suggests the needed study of other alternatives such as boarding out. Already practised in Massachusetts, New York and other states and with Pennsylvania embarking on an official boarding out program it would seem that this is an approach to the problem which is worthy of serious consideration.

The West Virginia experiment is of interest, but it is questionable whether such a plan could be put into effect in many other states without arousing serious opposition.

The numerous "studies" and "investigations" which are now going on reflect not only an interest in psychiatric problems, but a determination by interested groups to see that necessary modernization is made in our statutes.

Some of these investigations or studies are political in their nature, such as the original Maryland investigation, but it has been shown that an enlightened public opinion, if lead by representative psychiatrists can easily dissipate their effect.

Members of the Association are invited to send items of interest to Dr. C. C. Burlingame, Chairman, Committee on Public Education, 200 Retreat Avenue, Hartford, Conn.

California:

Dr. E. W. Mullen for the past 24 years assistant superintendent of the Agnews State Hospital was appointed superintendent of that hospital, succeeding Dr. J. M. Scanland who was transferred to the superintendency of the Napa State Hospital.

The new Camarillo State Hospital, situated in the Malibu Hills is now being used, patients having been transferred from Napa, Norwalk, Stockton and Sparta. This is the first unit in a six million dollar hospital project.

Colorado:

Conditions have been improved at the Pueblo State Hospital by the erection of six new buildings accommodating 1200 additional patients and the installation of a cafeteria food service which has proven to be quite satisfactory.

Although there is no official or administrative tie-up between the Psychopathic Hospital and the State Hospital under a plan now effective, staff physicians from each institution are assigned three months service in the other. A certificate is granted by the University of Colorado on the satisfactory completion of this work.

Recent legislation prohibits the sale of sedative drugs except on the prescription of a physician.

Delaware:

A closer integration between the State Hospital and other Public Welfare Agencies may be effected by the recently formed "Study Group" representing each phase of welfare work. An executive and board member from agencies dealing with such specific problems as "Health," "Dependency," "Delinquency" "Aged" and "Negro Race" together with two members of the State Board of Charities constitute the Study Group. The duties of this group are to study the needs and requirements of each institution, organization and agency and to make recommendations to the Governor and Budget Committee.

Bills calling for the expenditure of $462,000 for alterations, repairs and remodeling of various state hospital buildings failed to pass at the last legislature, but probably will be introduced at the next session.

Illinois:

As part of an eighteen million dollar Public Welfare building project, seven new buildings at an estimated cost of one million dollars are being erected at the Elgin State Hospital. The addition of these buildings will bring the rated capacity of the institution up to 4500 patients, and it is not planned to expand beyond this point.

The buildings being erected are:

1. Diagnostic Center, a two story building with a capacity of 200 beds. A feature of this building is the conference room suitable for groups of 125 or more. While there will be single rooms, practically all patients will be cared for in sleeping bays of ten to twelve beds each, with ample dayroom and dining room space for up-patients.

2. Tuberculosis pavilion, providing for the care of 100 patients; about 4.4 per cent of patients in this hospital are known to be tuberculous, about one half being inactive. Arrested cases are kept under observation and returned for sanitorium care when indicated.

3. Two simple one story E type structures to be used as infirmaries. Other buildings include an additional cottage for able bodied male patients, an employees' building and a staff house.

The Institute for Juvenile Research under Dr. Paul L. Schroeder is making an intensive study of the cause of and treatment for juvenile delinquency. Operating as a joint project between state and private agencies this "Chicago Area Project" is concentrating on a circumscribed area known for 35 years to have a high incidence of delinquency, and is studying this area from both a psychiatric and sociological viewpoint.

While the project has been effective for several years now, because of its extensive nature no official reports of the study are yet available.

Kentucky:

Legislation providing for a 35 day observation commitment, a drastic departure from precedent, successfully passed the Kentucky legislature and is now in effect. Other legislation of a progressive nature, still pending at last report, would create a full time Juvenile Court judge for Louisville and Jefferson County.

A program involving the expenditure of more than ten million dollars for the reorganization of the state hospitals is being considered by the Legislature. Tentative plans would involve the construction of two new institutions, one for the mentally ill and the other for mentally defectives.

Recent additions to the Louisville City Hospital have made it possible to re-model the psychopathic ward and to install additional hydrotherapy and occupational therapy units.

Dr. Oscar E. Hubbard formerly of the Fairfield (Connecticut) State Hospital is now at the University of Louisville with Dr. Spafford Ackerly, having started his Fellowship on January 1.

Maryland:

Dr. S. W. Weltmer has been appointed medical superintendent of the Spring Grove State Hospital at Catonsville; Dr. Ira Darling, formerly superintendent of the Warren (Pa.) State Hospital has been appointed medical superintendent of the Springfield State Hospital at Sykesville.

It is pretty generally felt that the damage caused by the legislative committee which last year investigated the Springfield State Hospital will be more than counteracted by the new committee which consists of three psychiatrists, an eminent attorney, an able woman and a business man. This committee is at present studying all matters relative to the care of the mentally ill and the feebleminded, and a feeling of comparative security has replaced the unrest which was prevalent during the bludgeoning process of the now discredited legislative committee.

Missouri:

The City of St. Louis is about to construct a Psychopathic Hospital of 204 beds at a cost of approximately $1,200,000. Land has been acquired for this purpose adjoining St. Luke's City Hospital.

To remedy overcrowding caused by a lack of new construction over a 20 year period, the State of Missouri has floated a ten million dollar bond issue which has been supplemented by six million dollars of P. W. A. money. Approximately eight million dollars have been allotted from this fund for new construction at the four state hospitals and school for defectives. In constructing these additions to the existing institutions cognizance was taken of the new law which enables voluntary patients to remain in state hospitals for a period of six weeks, and clinic buildings are being located so that these short-term voluntary patients will not come in contact with chronic cases. It is expected that voluntary patients will thus be attracted for diagnoses and advice.

Nebraska:

Legislation imposing a mill levy, designed to raise funds for the construction of new buildings and renovation of existing structures, was defeated, but it is planned to re-introduce the bill at the next session of the Unicameral Legislature in January, 1937.

New Hampshire:

Aided by W. P. A. the New Hampshire State Hospital is adding to its building for active male cases and is also building duplex houses for its physicians.

New York:

The Department of Mental Hygiene will probably receive about five million dollars from the bond issue approved last November 1, for construction. It is to be allocated as follows:

Rockland, 1200 beds	$3,150,000
Brooklyn, 800 beds	640,000
Creedmoor, 400 beds	930,000
Utica, 450 beds	303,000

One of the outstanding bills introduced in the New York legislature this year was the proposal to put into effect the eight hour day in all institutions. This has been favored by the Department of Mental Hygiene for many years and was recommended by the Governor in his annual message, together with the suggestion that a lump sum appropriation be made as a beginning, the plan finally to be perfected during the next fiscal year.

Other bills pending at last report were, a bill requiring five years residence of both parties for annulment of marriage on the ground of incurable insanity; a bill limiting the powers of local municipalities in the application of zoning laws to licensed institutions already established; a bill requiring an appointing officer to appoint only the person standing highest on the eligible Civil Service List; and another, prohibiting educational requirements for Civil Service positions except professional positions. Under the Corrections Law, a proposed amendment provides that a prisoner sent to a hospital because of sickness must be kept in the custody of officials in charge of a jail instead of the chief officer of the hospital. If passed, this last-named bill might prove to be somewhat of a nuisance in mental hospitals.

Needless to say, some of the proposed legislation listed above, will never see the light of day.

North Carolina:

The North Carolina Neuropsychiatric Association has been extremely active during the past year in formulating a state-wide mental health program. The Association is well represented on the special committee which has been appointed to report to the Legislature on proposed changes in public institutions.

North Dakota:

A new seven story building, to be used as a medical center is now under construction at the North Dakota State Hospital. The building will supply infirmary care and treatment for 450 patients and will relieve the present over-crowded condition. The cost of the structure is $360,000 exclusive of equipment, part of the money being furnished by the federal government and the balance by the state.

Five stories will be used for both male and female patients with sexes on alternate floors. The seventh floor will contain the operating rooms and physicians' quarters. Each floor will contain a hydro-therapy unit, although the main hydrotherapy department will remain on the receiving wards which are located in a separate building.

Ohio:

Continuing progress has been made at the Hawthornden Colony of the Cleveland State Hospital. There are now seven cottages of old English type with a capacity ranging from 40 to 175 beds. Furnishings are a departure from the usual hospital pattern. The last cottage opened will be used

for the reception of new cases and for the care of those acutely ill. Another building for housing tuberculous patients, accommodating 125, will be completed July 1.

The extremely comprehensive and intelligent survey made by the Sherrill Committee, of all state institutions, has been in part effected by the creation in the Department of Public Welfare of four subdivisions; *viz.*, Division of Administration, Division of Mental Hygiene, Division of Corrections and Division of Public Assistance.

For the twelfth time a Sterilization Bill has been introduced in the Ohio Legislature and at the present writing, it looks as though for the twelfth time it will be defeated.

The Ohio building program for 1936 as outlined by Mr. Oakley Spaght, Assistant Director of Public Welfare in that state is as follows:

> "This program will be carried on by the money appropriated by the 89th General Assembly which set aside $550,000 out of the general revenue fund, each year during 1934, 1935, 1936, 1937. There will be a like expenditure in 1937 which will have completed the total building program intended to provide additional facilities for mental and feeble-minded cases. In addition to this, permission was secured from Governor Davey last week to write an appropriation bill calling for one million dollars to relieve the condition in Cuyahoga County. At the present time there are 1080 patients in private sanatoria in Cuyahoga County being paid for by the state at the rate of $2.50 a day because of the crowded condition at the Cleveland State Hospital and Hawthornden. This million dollar appropriation will be used at Hawthornden."

Pennsylvania:

Dr. Arthur P. Noyes for the past six years superintendent of the Rhode Island State Hospital for Mental Diseases has been appointed superintendent of the Norristown (Pa.) State Hospital.

The Boarding Out Amendment which enables superintendents to place patients in boarding homes, passed by the Legislature in 1935, is being carefully and slowly applied, according to Dr. William C. Sandy, director of the Bureau of Mental Health. Rules and regulations covering the boarding out system have not yet been completed but will include adequate investigation and supervision of the homes and adequate supervision of the carefully selected patients. It is expected that not more than two patients will be placed in any one home.

Rhode Island:

The most extensive building program in the history of the state has been started as a P. W. A. project, financed in part by the state through a special bond issue. The total amount available is $4,250,000 and will include the erection of buildings recommended by Dr. Arthur P. Noyes for several years.

Among the projects will be a new medical and surgical building, a building for tuberculous, five buildings of the continued treatment type, an administration building, a staff house, five cottages for physicians, a building for the treatment of acute recoverable cases, a laboratory, two employees' dormitories, the installation of a cafeteria for patients and one for employees, also the construction or enlargement of various service buildings.

As stated previously, Dr. Noyes has recently accepted the superintendency of the Norristown (Pa.) State Hospital.

South Carolina:

Overcrowding at the South Carolina State Hospital will be alleviated with the completion of five new ward buildings with a combined capacity of 854 beds. Contract has just been signed for a psychopathic building which will have a capacity of 200 beds. In the opinion of Dr. C. F. Williams, this will relieve the overcrowding and allow considerable space for some time to come.

The results of community education by hospital authorities are reflected in the attitude of the general public throughout the state and in the cooperative action of the Legislature which has consistently been generous in its appropriations for this hospital.

Utah:

A committee of nine has been appointed by the Governor to investigate all state institutions for the care of the mentally ill, the defective, the delinquent and the dependent. One of the principal objectives will be the creation of public sentiment for the erection of additional buildings at the State Training School at American Fork, Utah, so that the mentally defectives now in the State Hospital may be transferred to the former institution.

Application for an additional $60,000 has been made to Works Progress authorities in order to complete building projects at the Utah State Hospital inaugurated under P. W. A. but still incomplete because of lack of funds.

The Utah Mental Hygiene Society is active at the present time in an attempt to establish child guidance clinics. The program has not yet been formulated and attention is now concentrated on raising sufficient funds to inaugurate this program of preventive psychiatry.

Virginia:

Although no constructive legislation of interest to psychiatrists was passed this year, a definite, progressive program is being mapped out and will be presented to the next Legislature by a representative group of psychiatrists.

Washington:

During the past two years approximately $750,000 have been spent for new construction at the Western State Hospital and a similar amount will

be spent during the coming year. Seven new wards are being built, a new assembly hall accommodating 1250 people, new kitchens, new employees' quarters, and new occupational therapy building.

West Virginia:

In August 1933 the Huntington State Hospital opened a "private" clinic in which was placed complete diagnostic equipment; the unit itself constituting a medical and surgical service. Revenues obtained from this clinic have accumulated as an executive and emergency fund. By special act of the Legislature, the superintendent, Dr. C. T. Taylor was authorized to utilize this fund for the purchase of a farm. A four hundred and fifty acre farm was secured and is now under process of improvement so that vegetables can be produced, a dairy herd maintained and beef cattle and hogs raised for hospital consumption. In the words of Dr. Reaser, first assistant physician of the Huntington State Hospital,

> "The success of the clinic in drawing patients who would otherwise have gone out of the state to private sanitaria has been very marked, so that our incoming population shows twice as many patients who pay for their hospitalization as the legally committed patients. The result is a completely filled service and has encouraged the superintendent and Board of Control to secure a loan from W. P. A. for the construction of another story and this work is now in progress."

Wisconsin:

A special committee of the State Medical Society of Wisconsin is now engaged in making a study of laws relating to the mentally ill with a view to recommending legislative changes in the commitment laws and other needed improvements.

First International Congress of Sanatoria and Private Nursing Homes.—Announcement has been made that the First International Congress of Sanatoria and Private Nursing Homes will be held in Budapest at the end of September next. Special invitations will be sent in due course to all parties concerned. Short extracts of lectures, discussions, proposals, etc., should be sent to the following address as early as possible in order that they may be included in the official program: Committee of the First International Congress of Sanatoria and Private Nursing Homes, Budapest, Margitsziget Sanatorium.

Index for Volume 92.—In order to facilitate compilation and to ensure greater accuracy and completeness, the indices which have hitherto appeared in the May number of the Journal will this year be printed as a supplement and included in the July issue.

Book Reviews.

CRITERIA FOR THE LIFE HISTORY. By *John Dollard* (New Haven: Yale University Press, 1936.)

This book deserves the close attention of all scientists dealing with human behavior. It is essentially a study of the present state of our knowledge of the individual in society, particularly of what is somewhat vaguely called the problem of personality. The author has approached this problem in a rather new way. He is not primarily interested in what any particular science has to say about the individual, nor is he concerned with which science or sciences ought to be concerned with personality. His main aim is to find the fundamental viewpoints or axioms from which anyone dealing with individual human beings should start, be he styled sociologist, psychologist, anthropologist, psychiatrist or otherwise labelled. To find these fundamental axioms of social science Dr. Dollard has gone to the body of existing life-histories, and from a wide and intensive study of that material and from an anthropological standpoint that can best be described as "neo-functional," has attempted to lay down certain standards to which any life-history should conform, if it is to give a picture of the individual satisfactory to students of human behavior. To readers unacquainted with recent anthropological writing, his seven criteria may seem rather arbitrarily arrived at, and perhaps the reasons for selecting these seven are hardly treated fully enough. One of them (no. 1) is purely sociological and emphasizes the importance, for the life-history, of the culture into which the infant is born; (no. 2) stresses the organic character of the individual who is born into the culture: (nos. 3 to 6) direct attention to the fact that the life-history, from birth onwards, is a story of interaction between the culture and the organism, that the product which we call personality is the end result of that interaction. The other criterion, (no. 7) is a methodological one concerned with stressing the manner in which a life-history is treated or maltreated by the commentator.

These seven criteria, the culture, the organism, the family as the initial conditioning factor which the organism meets, the actual training of the organic material into cultural forms, the continuous nature of the individual's "becoming," the concrete-situational nature of a life and the way the collector handles the material, are then applied line by line and point by point to six published life-histories, one by Freud, one by Adler, one by a student of Ranke, one by H. G. Wells, one by Shaw (The Jack-Roller) and one by Thomas & Znaniecki. As might be expected, no one of these is even formally satisfactory on all counts, which is to say that no life-history yet published is satisfactory to social science in its widest sense. Dr. Dollard has not attempted to remedy this directly, nor from the point of view of this book could it reasonably be expected. His aim is not to write the perfect life-history but to show on a basis of sound social theory what the perfect, or even the scientifically acceptable, life-history should comprise.

This leads him in a final chapter to consider the present trends and basic concepts in the social sciences. He draws attention to the unfortunate fact that cultural studies are inclined to neglect the actual, real, living individual, while individual studies tend to be dealing with an unjustifiable figment, the individual divorced from culture. The concept of culture, says the author, was not discovered in the field of clinical psychology, and is simply a bit of knowledge that has not yet gotten around to them in any effective way (p. 38). A good deal of his final discussion of psychology and sociology is (consciously or unconsciously) a restatement in modern terms of Comte's methodological discussions of a century ago, and it is both interesting and significant to find a modern writer arguing vigorously that there is really only a single social science and that the so-called social sciences of to-day are merely different angles for viewing the same section of reality.

The chief value of this book to psychiatrists should be to give them some inkling of the line along which cultural students are thinking concerning the personality problem and the growth of the individual in society. Such knowledge is conspicuously absent in psychiatry, hence the wish that Dr. Dollard had devoted more time to his early and final chapters, wherein he explains and justifies his criteria and less time to showing up the scientific inadequacy of people like Ranke. One psychoanalyst would have been ample if thereby more space could have been given to developing his theoretical treatment. He rather falls between two stools in this particular. At times he appears to be writing a work upon anthropological and sociological method, at other times to be really concerned with converting the psychiatrists to his viewpoint. Those acquainted with recent anthropological literature, particularly the writings of Margaret Mead and Sapir, do not need any converting to the "group plus one" hypothesis. Those not acquainted with it may find Dr. Dollard's criteria rather dogmatically set down and his justification of them based on a series of apparent assumptions foreign and suspicious to those unacquainted with human behavior outside our own society and raised, as most psychiatrists are, on a biological diet. In other words, it is hardly likely that biologically-trained students will have as wide a knowledge of recent cultural literature as the author requires of his readers.

It is a pity that a writer urging his colleagues to pay more attention to the cultural factor should be so naive about his own culture as to suggest that little Hans' father in Freud's case history is a normal father in our own society or to assume that Mr. Wells, if teaching in an English university, would not be able to write as freely as he does. But these are minor blemishes, as also is the use of unusual words like "unclear" and the verb "to jell." Dr. Dollard has cleared the way for a new attack on personality and individual behavior by showing up the inadequacy of existing life-histories. It remains for those who call themselves scientists and who are dealing with individual lives to read this book and begin to appreciate, even if dimly, the overwhelming influence of culture upon human behavior.

C. W. M. Hart,
University of Toronto.

STATE HOSPITALS IN THE DEPRESSION. A study of the effects of the economic crisis on the operation of institutions for the mentally ill in the United States. (New York: National Committee for Mental Hygiene, 1934.)

This report was prepared by the National Committee as an attempt to secure accurate data as to the effects of the depression on state hospital activities and to offer to state hospital administrators the pooled experience of the methods which are being used to give maximum service to their patients in the face of reduced budgets and other difficulties.

The findings might be summarized briefly as follows:

There is no proof that actual psychoses have been increased, as gauged by mental hospital admissions, although it is taken for granted that minor degrees of mental ill health have increased in number.

Overcrowding has become more acute, due chiefly to cessation of expansion programs. Some hospitals have had to refuse admissions because of the impossibility of still further overcrowding.

Reductions in budgets for both maintenance and salaries have been common, the annual average per capita expense being reduced from $312.18 to $269.26. Therapeutic activities have not suffered greatly, in proportion to other necessary or less important hospital departments.

On the credit side, superintendents have been stimulated to new efforts in economy and organization plans, staffs have been more stable and of better quality.

These findings are all given in the first chapter, the remaining chapters giving the actual data on which these conclusions are based.

The seven appendices deal with a simple economy budget and the comments of hospital administrators on these suggested economies as well as plans many of them have put into effect to increase or maintain their efficiency. Some of these latter suggestions are as follows:

Increasing production from farm, garden and dairy, salary reductions, installation of cafeteria food service, canning all surplus fruit and vegetables, more careful scrutiny of all articles for discard. One superintendent reports increasing period of duty for staff from 8 to 12 hours, a very doubtful expedient.

Appendix 4 strikes a high note in its insistence that, whatever sacrifices may be necessary, the treatment facilities must not be interfered with, that doctors, nurses and attendants must be kept at least at the minimum standard recommended by The American Psychiatric Association. It is urged that overcrowding be resisted strongly because of its interference with proper standards of treatment, and that preventive work, through mental health clinics, be increased rather than curtailed.

The comments of the administrators in appendices 2 and 3 indicate they readily agree with these suggestions and that, whatever financial restrictions be imposed, every patient shall receive the best therapeutic attention which offers hope of restoring him to health.

State hospital administrators will find this little book both informative and useful as they deal with the problems that arise from reduced budgets and which in many instances are being still further curtailed.

GEORGE H. STEVENSON, M. D.

MÄNNER ZWISCHEN 15 UND 25 JAHREN. Mentalhygienische Untersuchungen mit besonderer Berücksichtigung der Schizophrenie. By *Trygve Braatøy*. (Oslo: Druck und Verlag von Fabritius & Sønner 1934.)

Psychiatrists of a generation ago looked upon dementia præcox as a puberty disease. This is no longer an impressionistic view since it is a statistically established fact that the onset of schizophrenia in men is at its highest between the ages of 20 and 30. The present monograph is an attempt to throw some light on the underlying factors responsible for this early onset.

Analyzing the statistical material from various advanced countries Braatøy draws attention to the mistakes which crept into previous studies and the general tendency of the medically trained statisticians to evaluate the age factor along the same lines as it is practiced in the field of pathology. Such an approach in the statistical studies of schizophrenia, he believes, is a misleading one. One may, for instance, incorrectly assume that the peak in the schizophrenia curve in men is between the ages of 20 and 30 as a result of a general susceptibility at this particular age period. This, Braatøy believes, is a superficial and unscientific way of looking at the problem since there are many other factors involved, especially the social and economic influences, particularly during years of economic crises. Discussing the question of general morbidity on the hand of Syndenstricker's statistics he points out that the lowest point in the morbidity curve for men coincides with the peak in the onset of schizophrenia and while women occupy a prominent place in the total morbidity curve they constitute only a small percentage in the schizophrenia statistics. He further argues that if one studies the general health and morbidity statistics of the total population one finds that the male population is at its best health at the schizophrenic age. Discussing the figures of the general mortality rate he comes to the conclusion that there is no particular basis for the assumption of the existence of a general decreased resistance in the third decade of man's life. His analysis of the frequency of tuberculosis in the general population and among schizophrenics is one of the most important chapters of the monograph. He refutes the impressionistic view of some psychiatrists who would want us to believe in an identity of both conditions. He points out that the age distribution for tuberculosis has not the same degree of international similarity as for schizophrenia and that while both sexes are affected by tuberculosis in equal proportion schizophrenia is more prevalent among men. This analytical study of statistical material brings the author to the conclusion that the problem of the age distribution in schizophrenia cannot be explained at the basis of a reduced resistance. Having dispelled the question of resistance the author approaches the problem from a social and economic point of view. Accepting the dictum that the schizophrenic escapes into the disease, a phrase which incidentally

the author feels should not be looked upon as a *façon de parler*, he shifts the emphasis from the disease proper to the mechanism of the flight. In this connection he discusses the problem of unemployment, movement from the farm to the city and emigration. On hand of well documented statistics he points out that men wander out in largest numbers at the schizophrenic age while women emigrate in fewer numbers and at a later age. It is rather significant that mental health, prosperity, and marriage should go together. Interesting in this respect are the figures cited by the author indicating lower percentages for emigration and mental disease, and a general higher economic status in Denmark as compared with conditions in Norway. This apparent close relationship between pathology and sociology is further emphasized by the higher mortality rate from tuberculosis in Norway than in Denmark. Braatøy feels that these facts may explain to some extent the occasional coincidence observed between tuberculosis and schizophrenia, both probably depending upon common sociologic factors. He then raises the question concerning the forces that make man between 15 and 25 leave home or run away into the disease. Why, asks Braatøy, doesn't he react some other way? He thinks that the young man runs away from the social impact because he is not able to put up a fight; he cannot "show his teeth." This brings him to the consideration of aggressiveness, delinquency, and crime, and their relationship to schizophrenia. Again with the aid of numerous statistical compilations the author brings forth the fact that at the schizophrenic age man is faced with severe social and economic problems and unless he has firmly established his social security he is in a precarious state. He explains along similar lines of reasoning the high percentage of crime among those who forsake the farm and village for the large city, where they can lose their identity and where they can give vent to their anti-social drives.

He shows how men beginning with the age of 15 are confronted with the social impact and how as a result of this encounter certain changes in the nature of "social splitting processes" take place. At this age society ceases to look upon the asocial tendencies as simple problems which can be remedied by educational care; society begins to treat these adolescents as delinquents and criminals. Discussing further the changes that have taken place in the whole life span of man during the last hundred years Braatøy points out the discrepancy between the general improvement in the living standards as reflected in the notable decrease in the mortality rate from tuberculosis, and the lack of any improvement in the 15 to 25 year period. In fact young men between 15 and 25 have surpassed in recent years their elders in crime statistics. Emigration, which is usually determined by unemployment, is also the highest in this critical age group.

Discussing the sex problem Braatøy feels that the sexual conflicts in man begin at puberty and continue to exist during the trying years of social adjustment until he has reached a better or a worse social station in life. As an indicator of adjustment he takes into consideration the age of marriage. He feels that both the sexual and social conflicts begin at puberty and con-

tinue up to the age of marriage. The author, however, believes that the overt sexual implication at this period and its influence on the general mental state of the individual is self-evident.

The conclusion the author draws is that schizophrenia frequently runs parallel with social pressure and that the schizophrenic is the victim of the social assault.

In a separate chapter he discusses the problem of schizophrenia in women. As it is, of course, a known fact, women are less frequently subject to schizophrenia at the age when men are mostly affected; they have their highest peak at the 30 to 40 age period. The explanation, according to Braatøy, is that women are not affected in the 15 to 25 age period by the social pressure as directly and forcefully as men are. Braatøy points out that even in the proletarian classes the 15 year old girl is more bound to the home and her family than her 15 year old brother. On the whole, the separation from childhood home and childhood years in general does not represent for the woman the same jump into the unknown or isolation but simply a change from one home to another where somebody again steps in and spares her from the direct struggle for existence. To this is to be added the fact that woman is longer and stronger attached to her childhood home thus having a shorter isolation period than man has. There is another important point, according to Braatøy, which may explain woman's lessened vulnerability. During the 15 to 25 year period, if she is at all attractive, she can utilize her "eternal feminine" weapon. In this connection Braatøy mentions Watson who says, ". . . . when business difficulties arise, when hard training periods face them, many women choose the seemingly easier road and allow some man to earn bread for two." While woman is less lonesome until the age of 30 than man is the 25 to 30 age period is a turning point in her life; it is a period when marriage chances begin to decrease. He feels that the 25 to 30 year period in the unmarried woman begins to take on an ominous coloring.

Schizophrenia among married women is explained by the fact that in this age period the adjustment to marriage makes the greatest demand and that failure may lead to a schizophrenic escape.

He closes this chapter with the suggestion that schizophrenia among unmarried women between the ages of 30 and 40 is probably due to lonesomeness. This thought is emphasized by an epigraph prefixed to the chapter and taken from Tucholsky:

> "Das ist schwer: ein Leben zu zwein.
> Nur eins ist noch schwerer: einsam zu sein."

The author is quite mindful of the problem of constitution in schizophrenia and yet he cannot help feeling that the social implications are probably the most important and he goes as far as to say that sociology rather than science of constitution will eventually open the road to the real solution of the problem of schizophrenia.

It is interesting that Braatøy came to this conception through analysis of such a variety of statistical data as general morbidity, general mortality,

tuberculosis, resistance, emigration, general movement of the population, crime, etc. His is a rather novel approach to evaluation of statistical compilations. It is not the traditional cold quantitative analysis of figures but rather a qualitative and shall we say emotional interpretation of data. This approach was somewhat of a surprise to the reviewer since he was impressed with Braatøy's introductory epigraph to the first chapter taken from Chaddock's "Principles and Methods of Statistics": "It is essential for the scientific worker to describe experience in exact terms, but not with greater exactness than the facts warrant."

If one may dissent with the author's tendency to minimize the importance of the constitutional factors in schizophrenia there can hardly be any quarrel over his emphasis on the sociologic implications.

On the whole this monograph is a scientific contribution to the cause of mental hygiene and as such will probably gain wide recognition in mental hygiene circles.

J. NOTKIN, M. D.

FIFTY-NINTH ANNUAL REPORT OF STATISTICS OF CRIMINAL AND OTHER OFFENCES FOR THE YEAR 1934. (Ottawa: Dominion Bureau of Statistics.)

This report represents a summary of criminal and other offences in the Dominion of Canada for the year 1934. It includes also comparative figures for the years 1876 to 1934.

The report is presented in four parts, an introduction and an historical appendix. The first part deals chiefly with indictable offences, only a small section being given over to the non-indictable crimes. By indictable is meant the more serious crimes, by non-indictable, the less serious crimes. Part II deals with the juvenile delinquencies. Part III reviews the number of cases dealt with by the different courts, and part IV reviews miscellaneous items, such as police statistics, prison statistics, pardons, executions, etc.

There were 366,152 trials in Canada during the year ending September, 1934, of which 37,408 were indictable and 328,744 non-indictable cases. Comparing these figures with those of 1933; there were 331,600 trials of which 38,927 were indictable and 292,673 non-indictable. There is a decrease in the number of convictions for indictable offences, an increase in the number of convictions for non-indictable offences with an increase in the total number of convictions for both indictable and non-indictable offences. There is a table which deals with the ratios of convictions to charges for each of the provinces, showing that during ten years, 1925 to 1934 inclusive, the greatest proportion of convictions is found in Saskatchewan, where 90.89 per cent of all cases tried were convicted. The other provinces are in order: Manitoba, Alberta, British Columbia, Yukon and North West Territories, New Brunswick, Ontario, Quebec, Nova Scotia, and Prince Edward Island with 69.50 per cent which is the lowest percentage of convictions. It is interesting to note that the ratio of convictions to charges for Canada has increased

from 79.41 per cent of all charges in 1925 to 84.70 per cent in 1934, which is greater than the ten year average of 81.83 per cent.

There are many tables giving information concerning indictable offences.

Multiple Convictions.—There were 29,386 persons convicted of one indictable offence and 2298 convicted of two or more offences as compared with 17,744 and 1273 in 1928.

Indictable Offences by Classes and Crimes.—The following is the number of convictions for each of the six classes of indictable offences: offences against the person, 3588; against property with violence, 4238; against property without violence 15,853; malicious offences against property, 484; forgery 690; and miscellaneous group 6831. There were 1258 fewer convictions for indictable offences during 1934 than during 1933.

Female Offenders.—The total number of female offences in 1934 is 3145 as compared with 2660 in 1930. A decrease is shown for the first time since 1931 both in the number and proportion to total convictions, of females in Canada convicted of indictable offences.

Recidivism.—The percentage of the total number of persons convicted for the first time as compared with those convicted more than once during the five years 1930 to 1934, is the lowest in the five year period. Second convictions show a slight increase in 1934, while the percentage of those convicted three or more times is the highest in the five year period.

Sentences.—Comparing the figures of 1934 with those of 1933, there is a slight decrease in the percentage given fines, sentenced to the penitentiaries and awarded suspended sentence. There is an increase in the percentage of those sentenced to common goals and reformatories.

The largest number of persons convicted of indictable offences come from the laboring class. The greater number of them are single. With regard to the educational status of persons convicted of indictable offences, by far the greatest proportion of them has had an elementary education.

Juvenile delinquents are dealt with under the two headings, those committing major offences and those committing minor offences. In 1934, there was a total number of 9448 cases brought before the courts which is an increase of 586 as compared with 1933. There is an increase of 322 charged with major offences and an increase of 264 charged with minor offences. With regard to juveniles dealt with in the courts more than once, statistics show that the proportion of repeaters has not varied materially during the ten years, that approximately one of every four delinquents has been in court before, that one in nine has been convicted once before and that one in six has been delinquent more than once before. Concerning the disposition of delinquents, we find that in the period from 1924 to 1934, the greater number of them were either released on probation under supervision of the court or had their sentence suspended. Very few received corporal punishment.

In 1934, of the criminal cases 1389 were tried by jury; 3037 were tried by judges without a jury; and 32,982 cases were tried by magistrates. There were 328,744 convictions of non-indictable offences by magistrates. In the

juvenile court proceedings there was a total of 9448 juvenile offences of which 6364 were major offences and 3084 were minor offences.

The last section of this summary gives comparative figures for the years 1876 to 1934. In 1876 there were 28,215 convictions for all offences with 714 convictions per 100,000 population as compared with 368,234 convictions for all offences and 3549 convictions per 100,000 population in 1934. It is rather interesting to note that the ratio of convicted persons sent to reformatories to those convicted persons receiving other types of sentence has not increased over this period of time but has remained approximately the same. The ratio of convicted persons whose sentence was suspended to those convicted persons receiving other types of sentence has increased from 1.6 per cent in 1877 to 21.4 per cent in 1934.

MIRIAM M. WINSTON, M. A.,
Toronto.

THE IMPROVEMENT OF READING. A Program of Diagnostic and Remedial Methods. Revised Edition. By *Arthur I. Gates.* (New York: Macmillan & Co., 1935.)

The reviewer has enjoyed this very meaty book and wishes to congratulate Professor Gates on his very valuable contribution.

The reviewer's remedial teacher's staff have used Gates' material as presented in the first edition of this book for several years. They have found it one of the most helpful works available in the diagnosis and treatment of remedial reading cases. The present edition, based on further findings, should be even more valuable.

The order of the presentation has also been changed, and in our opinion improved. It progresses "as a diagnostician should progress, namely, from a survey of a class to a study of milder cases to a study of more serious cases, and finally to the consideration of extreme problems." The first section of the book is devoted to diagnostic and remedial techniques which can be applied by the teacher in connection with her practical teaching task, going rather explicitly into the characteristics of good reading techniques and the nature of good methods of developing them. Parts of the section will make difficult reading for the young teacher unless she has before her a copy of the tests (published separately) which he is describing, particularly so in interpreting many of the statistical tables which he presents in the body of the book. This difficulty arises from the double purpose for which the book is designed—as a "manual of directions for diagnosing and correcting defects in reading in the first eight grades," and as a specific manual for use with the copyrighted tests which the author has designed. Even without possession of the specific tests, however, the book contains much "meat" for the use of the teacher in a classroom situation.

The latter half of the book (from chapter XII on) is directed more specifically to psychologists and other experts in educational and psychological measurement and diagnosis. Here are found diagnostic techniques and recommendations for treatment of the more serious reading disabilities, including

a chapter on remedial instruction for handicapped pupils—pupils of low intelligence, deaf-mutes, etc., and "non-readers," those cases of extreme disability usually treated on a specialized basis.

At the end of the book are case studies of reading disability and several appendices giving directions for administering and scoring the author's tests, recommended books for use with pupils in remedial instruction, and a bibliography of diagnostic and remedial work in reading.

The author of this volume has spent years in studying methods of teaching reading in American schools and in the diagnosis and treatment of reading disabilities. His point of view is that of the practical educator. His premise can best be stated in his own words: "Most difficulties, ranging from the least to the most serious, are believed by the writer to be due primarily to failures to acquire techniques that might have been acquired had the right guidance been given at the right time."

Whatever may be one's personal viewpoint regarding this premise, the diagnostic techniques supplied by the author and the remedial methods recommended have stood the test of practical use, and are based upon controlled observation involving some thousands of cases, experimentation extending over a period of years. His evidence is impressive. Nevertheless, we find it difficult to accept as final his findings regarding the relatively unimportant part played by lefthandedness, mixed eye-and-hand dominance and lack of brain dominance in the incidence of reading difficulty. Perhaps, as the author suggests in regard to another investigator's findings (Davenport), we may "happen" to have had a large proportion of such cases in our own remedial work, and this has predisposed us to the point of view held by Dr. Orton and others. For what it may be worth, left-handed children have tended with us to have more difficulty in learning to read than right-handed children, particularly when the attempt is made to change them to the right hand; and cases of severe disability sent to us for treatment have tended to present at the same time right-left confusion, stammering, stuttering or other speech difficulties and unusual difficulty in acquiring reading, spelling and writing techniques.

Perhaps the treatment directed by us to the establishment of "unilateral dominance" has been effective—as Gates suggests—due to the emphasis upon left-to-right orientation, which has been neglected or inadequately emphasized in the initial teaching situation, rather than to the final establishment of the hypothetical "dominance." At any rate, it has been effective; and we have no quarrel with the techniques given by Gates for the acquisition of this left-to-right orientation, and whole-heartedly indorse his general remedial program.

We might wish the program to be somewhat broader. His case 8 is in point. Here he presents the case of a girl whose home situation would appear to be at least a contributory cause in a general picture of emotional instability, with the reading disability a symptom among many. Yet this symptom appears to have been treated in isolation—the little girl was taught to read. It is a little obscure to us why an investigation of the home environ-

ment is indicated if the remedial treatment is to be confined to teaching the youngster to read. As Gates himself says of such cases, "difficulty in reading is merely a phase of a larger problem in adjustment." Perhaps the larger problem in adjustment was handled in this case; if so, the presentation of such cases would be of added value if some report of this treatment were included.

In short, we feel that a reading disability is more often than not part of a larger problem and has its roots in many factors—only one of which may be "failures to acquire techniques that might have been acquired had the right guidance been given at the right time"—if by guidance he means, as he appears to do, the guidance given by the teacher in the specific task of acquiring a reading ability.

This matter of acquiring appropriate techniques is, nevertheless, an important factor and one over which the teacher has immediate control. Gates' book should be in the hands of classroom teachers and educational supervisors even more than on the shelves of psychologists and other experts—for its immediate, practical value in avoiding reading disabilities which arise as a result of failure on the part of the child to acquire a correct technique and for its value in the detection and treatment of such disabilities.

V. V. ANDERSON, M. D.

VIE ET SURVIE. By *Edgar Emmanuel Bonnet.* (Paris: Massageries Hachette, 1934.)

In this extensive scholastic monograph the author revives the contention of the vitalistic school of psychology with its dualism of mind and body and an attempt to prove that memories and remembrances are not lost with the death of the individual. One deals here with the Lamarkian point of view but instead of transmission of acquired characteristics, one finds here the transmission of intellectual qualities. There are numerous quotations and references to biology, evolution, immunology, neurology, etc. There is such an excellent knowledge of modern scientific literature and the quotations seem to be so apt that the non-critical reader might conclude that the author has actually found the proofs of his theories in modern science.

The whole process of immunity, for example, is explained in terms of cells retaining and transmitting certain memories when they were surrounded by inimical forces so that future generation of cells are born with well-established immunity toward destructive agents.

In spite of the author's intelligence, erudition and ingenuity, it is quite obvious that we are dealing with a psuedo-scientific rather than an objective scientific presentation of his material, although on the other hand one cannot help but admire the author's courage in defending a difficult position, and his absence of dogma.

J. KASANIN, M. D.

ELGIN STATE HOSPITAL PAPERS COLLECTED AND CONTRIBUTED. Vol. II. (Elgin: 1936.)

This brochure of 275 pages contains 30 papers on psychiatric subjects written by members of the staff of the Elgin State Hospital, a considerable number of them having been read at various medical association meetings. This respectable body of work carried on under the direction of Dr. Charles F. Read, managing officer of the hospital, gives evidence of the spirit of scientific inquiry which may be developed in connection with the routine activities of a busy state hospital service.

Dr. Peter Bassoe who contributes a foreword to the volume sums up its contents as follows:

"Just a glance at the titles disproves the altogether too common impression that patients in state hospitals merely receive lodging, board, and routine treatment of complicating physical ailments. In this hospital every kind of therapeutic approach justified by sound reasoning or practical experience has been made. Selected groups of patients have been given, under proper control, various kinds of fever, drug, and endocrine treatment, and individual and group psychotherapy. Training of nurses and attendants, and nursing care, occupational and recreational activities for patients receive deserved emphasis. An interesting innovation recorded in the previous volume is the training of a group of theological students who serve as attendants and recreational directors during the summer months. The further experience with the experiment recorded in this volume shows that it has benefited the patients and that the students go forth to their profession enriched with a deeper understanding of human nature."

C. B. F.

In Memoriam.

IVAN PETROVITCH PAVLOV.

1849–1936.

Academician I. P. Pavlov, known throughout the world for his work on the higher nervous activities of man and his studies of the digestive secretions, died on February 27, 1936, in Leningrad, at the age of 86, following an attack of influenza which developed into double pneumonia.

Ivan Petrovitch Pavlov was born at Riazian in Moscow Province, Russia, on September 26, 1849. His father was a country parish priest, who, though poor, believed in liberal education, freedom of thought and athletics. As a child Pavlov was delicate, but games, exercise and outdoor life improved his health. At the age of 11 years he entered the church (Greek Catholic) school and later continued his studies in the theological seminary. In this institution students were allowed wide scope and Pavlov became interested in natural science.

In 1870 he entered St. Petersburg University, where he had as teachers Mendeleeff and Butlerov, but his career may be said to have commenced at the Medico-Chirurgical Academy, for he became interested in physiology as taught by Professor E. von Cyon and Professor Sechnov. While an undergraduate Pavlov published his first paper (1877) on "Accommodation Mechanism of the Blood Vessels."

After graduation in 1879 he engaged in laboratory work in the Medical Clinic at the Military Academy under Professor Botkin. Thus early in his career he became acquainted with clinical problems. His work at the clinic must have been outstanding, because at the end of five years he was awarded the Wylie Fellowship, which enabled him to work for two years under Ludwig in Leipzig and Heidenhain in Breslau.

In 1886 he returned to his former position in the Military Medical Academy and commenced his work on the physiology of digestion. From this time, throughout the rest of his long life,

Pavlov made periodic contributions of major importance in his chosen field of physiology.

In 1888 he described the secretory nerves of the pancreas, and a year later he reported experiments on sham feeding. Up to this time physiologists were, for the most part, content with acute, non-recovery experiments. Pavlov was one of the first physiologists who applied the principles of Pasteur and Lister to physiological problems, and just as the scope of surgery was extended by asepsis, so was the field of physiological research. Pavlov became a skilful and up-to-date surgeon.

In 1890 he became professor of pharmacology in the St. Petersburg Medical Academy and the following year head of the department of physiology in the new Institute of Experimental Medicine. He gave up teaching pharmacology in 1895, when he obtained the chair of physiology in the Medico-Chirurgical Academy. In 1897 he published his classical monograph on the digestive glands.

In 1902 when Bayliss and Starling announced their work on secretin, Pavlov immediately repeated and confirmed their work. He had previously considered that nervous control was the essential factor in the secretion of digestive juice, but with the discovery of secretin he apparently foresaw clearly that the development of the knowledge of digestion would henceforth be largely in the hands of biochemists. He discontinued his investigations of the physiology of digestion.

Pavlov was a careful and accurate observer. In his earlier experiments he repeatedly noticed that hearing of footsteps of the attendant who fed the animals, seeing food, or smelling food might cause an animal to secrete saliva or gastric juice. He began to consider that the functions of the brain were based on reflex action similar to those of the spinal cord. He commenced to devise experiments to prove this hypothesis. These experiments on "conditioned reflexes" occupied the last 30 years of his life.

During the Russian revolution Pavlov continued his researches, and although he was a Czarist, he was not disturbed in his work. It is said that once during the revolution his experiments were disturbed by noisy groups of soldiers. In great anger he rushed to the steps of the building, sent for the leader, and commanded that the troops be taken away and kept away, since they were disturbing his experiments. He was obeyed.

Pavlov had a dominant personality. He attracted to his laboratory large numbers of students and assistants, and he was loved, honored, and even worshipped by them. He created a school of the physiology of digestion, and later a school of physiology of the nervous system. These groups were motivated and inspired to action by this outstanding and energetic man.

Pavlov was punctual in keeping appointments, temperate in all things and regular in habits. He worked incessantly during the teaching term, but took three months' holiday each year. During his life he travelled widely. He was a great lecturer because he had a clear conception of things and was able to impart a clear picture to his students. He had a great memory for things in which he was interested. He had a one-track mind. He handed over the care of his home to his wife and totally abandoned himself to his problems. He did not even read newspapers or periodicals, but relied on his wife to keep him informed of the outside world. He loved art like all research men and loved music like all Russians. He was passionately fond of flowers. He played "Gorodki" with his assistants almost to the time of his death. During conversation he flourished his arms and his face became animated. He was vivacious and demonstrative. He had great vigor and vitality and was filled with energy and enthusiasm.

Many honors were paid to Pavlov both at home and abroad. He was awarded the Nobel Prize in 1904. He was a Fellow of the Royal Society of London and received the Copley Medal in 1915. He received the Charles Mickle Prize of the University of Toronto in 1921. He was a member of the Russian Academy of Science. As well as these, he was an honorary member of many foreign societies. In 1935 he was president of the International Physiological Congress which met at Leningrad and Moscow.

So great is the regard for science in the Soviet Union that in recent years they have built for Pavlov immense laboratories at the cost of 8,000,000 rubles. They provided him with abundant facilities and assistants to carry on research work. Across the front of the building was Pavlov's motto—"Observe and observe." He was a national hero. His four books were widely read and their substance interpreted to the people. He died amidst the heartfelt adoration of his countrymen. The closer they were to him the more they felt his loss.

Acknowledging the exceptional services Pavlov rendered to the people of the Soviet Union, the Council of Peoples Commissars of the U. S. S. R. decided to perpetuate his memory by establishing a monument to him on one of the central squares of Leningrad; to rename the First Leningrad Medical Institute the Pavlov Institute; to instruct the Academy of Sciences of the U. S. S. R. to publish his complete works in Russian, English, French and German; to preserve his brain in the Brain Institute in Moscow; to preserve as a museum his Leningrad study and laboratory in the All-Union Institute of Experimental Medicine; and to grant his widow a personal pension of 1000 rubles a month. All expenses incurred were to be charged to the state.

All who knew Academician Pavlov were charmed by his kindly personality. His long life was crowded with scientific achievement for the benefit of mankind. He was indeed a citizen of the world. Advancing years did not dampen his enthusiasm or decrease his productiveness. His boldness in research, his dexterity in experimentation, his untiring energy and his power of original thought led to new schools of research physiology. Pavlov's name will live.

F. G. BANTING.

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